DOCUMENT RESUME

ED 321 359 EA 021 968

TITLE	School Business Management in the 21st Century.
INSTITUTION	Association of School Business Officials International, Reston, VA.
REPORT NO	ISBN-0-910170-55-X
PUB DATE	90
NOTE	168p.
AVAILABLE FROM	Publication Sales, ASBO International, 11401 North Shore Drive, Reston, VA 22090 ($20.00 prepaid).
PUB TYPE	Guides - Non-Classroom Use (055) -- Books (010)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Accountability; *Administrative Principles; Change Agents; *Educational Planning; *Educational Trends; Elementary Secondary Education; Food Service; *Futures (of Society); Prediction; *School Business Officials; School Demography; School Organization; *Social Change; Student Transportation
IDENTIFIERS	Risk Management; *School Business Management

ABSTRACT

As society's fundamental characteristics change, schools and school leaders must be prepared to modify the educational enterprise to meet the new and unique needs of adults and youngsters in the 21st century. To anticipate and control change, the school business manager must be able to project future trends, issues, and challenges. In this volume, 15 authors provide the school business manager with some insights regarding the future of U.S. education and their impact on the school business management function. The articles address organizational management trends, political and regulatory changes, U.S. demographic characteristics, forecasting technique, budgeting trends, revenue outlook, and information management systems. In addition, future trends in personnel issues, risk management, food service, school bus transportation, curriculum development, computer applications, and school facilities are highlighted. The concluding essay challenges school business officials to examine themselves and their school districts and to assess readiness for change. Large-scale organizational change includes several key elements: pattern-breaking, experimenting, visioning, bonding, and attunement. To be effective change agents, officials need to identify and overcome pervasive technical, political, and cultural reasons for resisting change. Each chapter contains extensive references. (MLH)

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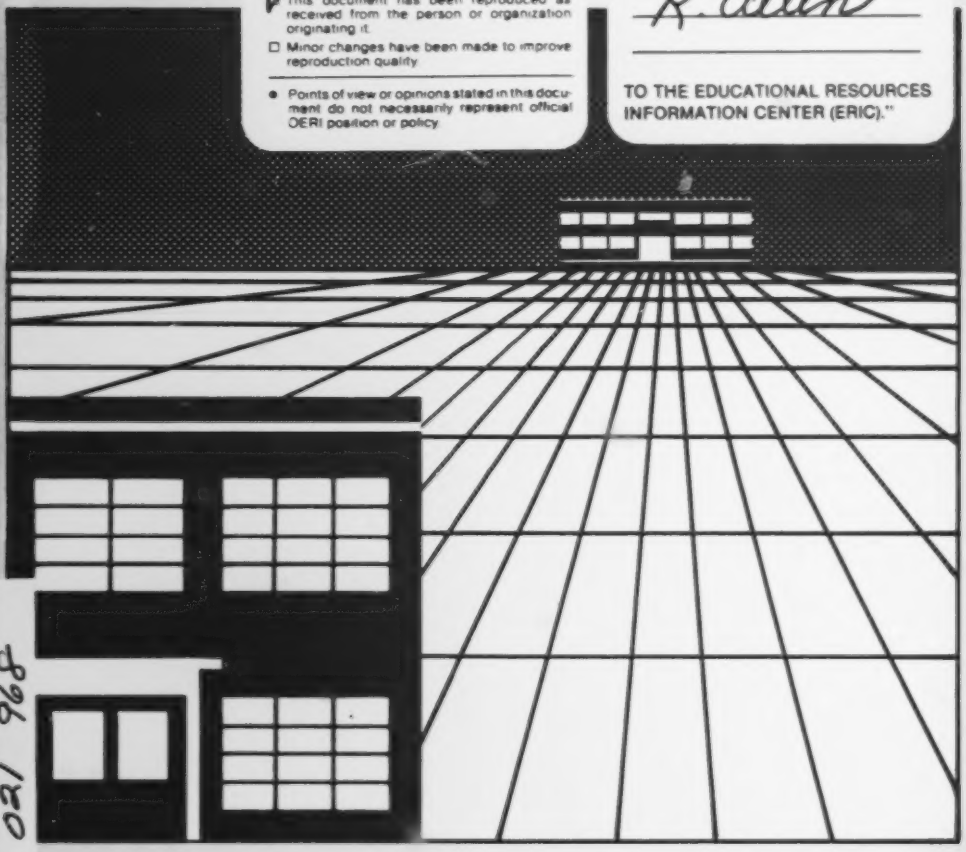

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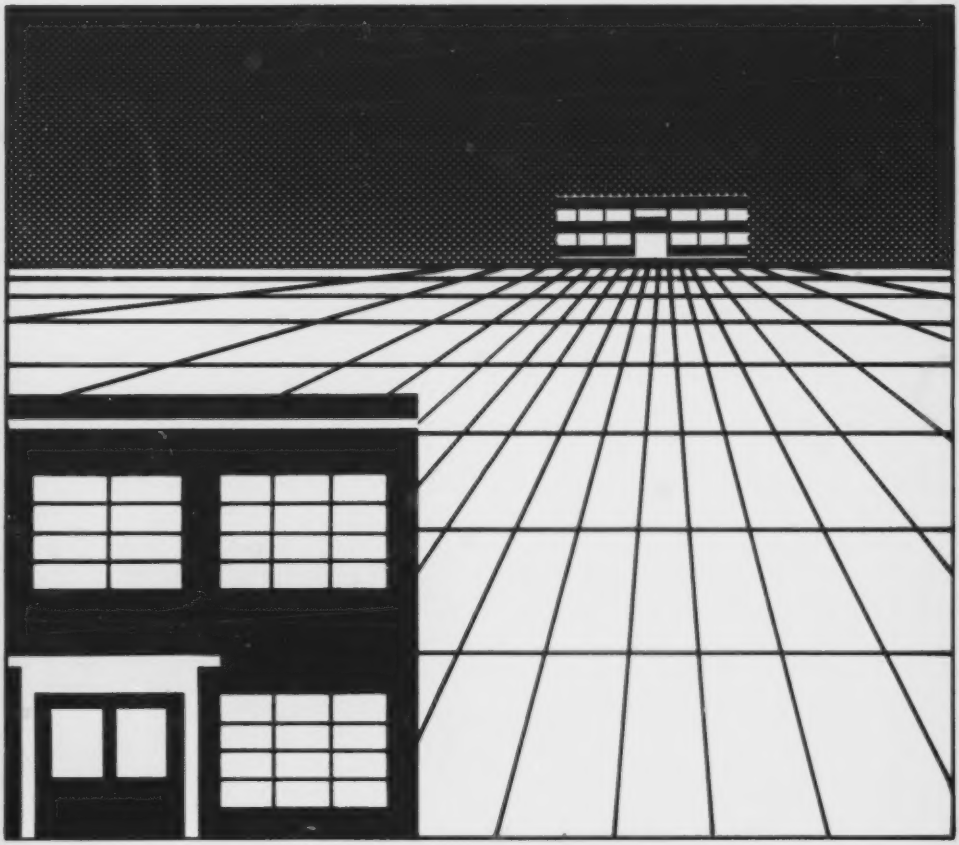

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Acknowledgments

The editors would like to thank the 14 other authors who contributed chapters to this book. Without their willingness to freely share their expertise, this book would not have been possible. Thanks is also extended to ASBO International for the opportunity to put into print what we consider to be important issues affecting the very future of education. In addition, we extend a special thanks to Jackie Richardson who typed and retyped the numerous editorial changes in the various drafts of the book. Finally, to Mr. Jacob Rivers, who proofed the many drafts, we want to express our thanks.

Prologue

21st Century Trends: Facing the World of Tomorrow

Kenneth R. Stevenson *University of South Carolina*

The world is changing! And, according to demographers, it is changing rapidly. During the decade of the 1980s alone, life has taken on an amazingly new look. Everything from age of the population to expectations of the educational enterprise are changing at a dizzying rate. And, increasingly, change itself is becoming the one constant in our lives as the world moves into the 21st century. In the next few pages are highlighted some of the more provocative trends that will influence and modify our world in general, and education in particular. As school business managers read about these trends, they may want to ask what implications such changes will have on their organizations. As importantly, school business managers may well want to start asking what needs to be done to address and adjust to these major trends.

Changing Face of the People

The world will be a much different place in the year 2001 than it is today. The family as we know it -- racial and ethnic composition, average age -- and the work place will change dramatically. As society changes in its fundamental characteristics, schools and school leaders will have to be prepared to modify the educational enterprise to meet the new and unique needs of adults and youngsters in the 21st century. In the following paragraphs some of the societal changes that will impact most on education are highlighted.

A Different Family

To many adults of today, the mental picture of a family is reflected in

such early television shows as "Leave It To Beaver" or "Father Knows Best." When the word "family" is mentioned, thoughts of Ozzie, Harriett, David, and Ricky come to mind for many of us. In 1950, that image was a true one with a majority of households in the United States consisting of a working father, a mother of the house, and two children. In the real world of the 1980s, less than 10 percent of U.S. households fit this image. More than half the youngsters born today will live with only one parent before the child is 18. Similarly, one in four of us will live alone.

In the 1950s the expectation was that a child would grow up, find a spouse, move into a cottage, and produce enough children to carry on the family name. The reality of the 1980s shows us a different picture. Many, many individuals on reaching adulthood have elected to remain single and childless. In fact, in the 1970s, this phenomenon was so acute that K-12 school populations throughout the United States plummeted to record lows. Moreover, one of the most interesting phenomena during the 1980s has been the increasing numbers of grown children who are moving back into the home of their parents. Coupled with the fact that one out of every two marriages is expected to end in divorce, it is apparent that life as "Beaver" knew it no longer exists.

A More Diverse Society

Further evidence of the changing picture is provided by data on birth rates. Though the downward trend in number of live births in the United States has reversed itself in the 1980's, the demographics of the newborn population of this decade portend a very different place in the year 2000. Today the number of births among white women is insufficient to replace that segment of our population. On the other hand, the number of babies born to blacks and, to a greater extent, to Hispanics will increase their numbers and percentage representation within the total population dramatically in the coming decade. In fact, many school districts in the South and West that have traditionally served a white majority student population will find that their minority students will be their majority by the early 1990s.

This trend toward increased minority representation within the total population of the United States is accompanied by a decrease in the average income of those having babies. A minority child today is likely to be born to a single parent living at or below the poverty line. Because of this, the new born probably has little chance to experience the enriched home environment available to other children. Mother is too tired after working to read and talk to the child. She also has so little income that purchase of games and toys and trips to the zoo that broaden a child's horizon are impossible. And, because of extremely limited resources, the parent cannot provide adequate health care for the youngster, resulting in permanent physical impairments that limit the ability of the youngster to learn. In general, the baby of the 1980s will be the student coming to school in the 1990s with limited educational readiness skills and an increasing number of physical and psychological disorders.

An Older Society

Though there has been an increase in births in the United States during the 1980s, it has not been enough to offset the aging of the population. Through better health care and diet, people are living longer. In 1950, to be 65 years of age was considered to be old. Today, life expectancy in the United States is well over 70 years with projections that, with ever growing emphasis on "wellness," people will routinely live to be a 100 in the coming decades. Combine this with the fact that the biggest cohort of babies ever born in the United States, the post-World War Two youngsters, are now adults, but relatively young, and it becomes readily apparent that adults will constitute a greater and greater portion of our total population. Issues of health care for the aging, protection of limited retirement incomes from taxation, and provision of job retraining opportunities will become increasingly important to an aging population that will control the political process through its enormous block of votes.

The Changing Job Market

The average person of the coming decades can expect to change jobs at least five times during his or her work life. With knowledge at least doubling every five years, and with technological advances eliminating manual labor at an ever increasing rate, the typical person will have to totally retrain every five to seven years to acquire skills to fill occupations that will emerge almost overnight. At the same time, the typical worker of tomorrow must prepare for a different approach to "the job" within the context of his or her lifestyle. While workers of the 1930s and 1940s faced 50 and 60 hour work weeks, with the job being a major consumer of the waking hours, workers in the 1990s and into the 21st century can expect work weeks of 30 hours or less. Increased utilization of robotics and greater emphasis on enjoyment of the human existence will reduce the time at the work place to the point that "job time" will be a relatively minor part of our waking hours. In general, Americans of 2001 will need to be flexible in career ambitions, prepared for re-education, and ready to utilize an increasing amount of "free" time for recreation, personal development, and service to community.

The New Face of Education

Not only will society be changing over the coming decades, but education as well. What is taught, who is taught, who teaches, how education is delivered, and who pays for it will be quite different in the year 2001 as compared to today. School districts that intend to survive and flourish in the years to come need to be aware of and prepared for these changes. The following paragraphs provide a broad picture of how education may well look tomorrow.

What Will Be Taught in 2001?

Eighty percent of the jobs in the 21st century will not require a college degree. The majority of the work force will be employed in service

occupations and in skilled labor positions in technological industries. Because basic knowledge and industrial methodologies will be advancing so rapidly, employers will not be looking for persons trained to operate a specific piece of machinery or carry out a prescribed technological procedure. Instead, businesses will seek employees who can reason, who are problem solvers, who have the desire and ability to learn new and different things, and who are creative. While employers will want job candidates who have achieved "the basics" in education, they will be much more concerned that prospective employees come to the job market with critical thinking skills and a desire for continued learning.

At the same time, as work weeks become shorter and individuals have more time for themselves, there will be an increasing interest in and demand for educational experiences geared to personal development. People will not only want to be taught to read and write but to enjoy life through hobbies, lifetime sports activities, and fine arts experiences.

As a result, schools in the coming decades will move away from today's heavy, and in some cases exclusive, emphasis on teaching basic skills. Less pressure will be put on the educational enterprise to produce good scores on standardized tests. Instead, in classrooms of the year 2001, students will be encouraged to ask questions, probe for answers, problem solve, and "think out of the box." Creativity and flexibility in looking at issues and problems will become the new "basics." To accommodate this new approach to schooling, class sizes will be smaller, less time will be devoted to lecture and rote learning, and student schedules will be highly diverse and flexible.

Who Will Be Taught in 2001?

For school districts, the basic answer to this question is -- virtually everyone. As 2001 approaches, there will be two factors that mandate schools serving younger and younger students. One, to make ends meet, both parents will work in 2001. Their young children will need a place to stay and someone to attend to their needs during the day. Two, there will be an increasing number of youngsters born into poverty and into single parent families where there is little time, money, or knowledge to nurture and encourage children. Left in such environments until they are five or six years of age, these youngsters would enter the formal educational system far behind and would never catch up. Society will mandate that such youngsters be cared for by schools.

Therefore, schools of 2001 will be designated by society as the "family" for many babies and toddlers. Schools will receive children shortly after birth and will provide during those first two or three formative years the enriched environment and attention that youngsters will need to be successful in the formal academic programs they will encounter later. Formal schooling will begin as early as age four, possibly even three. Kindergarten for five year olds will no longer be considered as a readiness experience but will be looked upon as a formal academic grade.

At the other end of the continuum, adult education will become an increasingly important responsibility of schools. One reason for this will be the need for continuous retraining on the part of adults to adapt to

the ever changing job market. The other reason that schools will be serving more and more adults is survival. In 2001 a vast majority of the population of the United States will be adults, a great many of whom will have no direct association with schools. This cohort will be extremely reluctant to support education with its tax dollars unless there is some obvious benefit. Therefore, schools will open their doors to an aging adult population to provide everything from vocational and avocational course offerings to wellness experiences to nutritional school meals, in hopes of gaining the support of this large voting block.

On a typical day in a typical school in the year 2001, a visitor will find babies in cradles in one room being cared for by retired grandfathers. In another will be a class in ceramics attended by a group of fifth graders and four retirees. Down the hall, a local business will be using the computer lab during a free period to retrain fifteen of its clerical personnel to use new software. In the cafeteria, food service workers will be preparing meals for elementary students and 35 adults from an adult housing development down the road. In the health room, the nurse assigned to the school by the county health department will be taking blood pressure readings of adults who drop by. Meanwhile, the school nurse tends to a three year old who scraped his knee on the balance beam. In the physical education room, the instructor works with an orthopedically handicapped 25 year old who has been at the school since she was two years old. The school will in fact be a microcosm of the society of 2001.

Who Will Teach?

Unfortunately, this critical question may well be the most difficult to answer. Today, fewer and fewer students entering college are electing education as a career choice. The problem has been compounded in recent years as a greater variety of job opportunities have opened to women. Unlike the past, education can no longer assume that it will have a virtual captive pool of talented women to staff classrooms. As critical is the growing dearth of minority teachers in America. As with women, blacks and other minorities are finally being given entree into job fields unavailable to them in the past. At the very time that the student population will be increasingly comprised of minorities, there will be fewer and fewer role models for them to emulate.

A concurrent question to who will teach is, "Who will lead?" Recent studies have shown that most teachers have no desire to enter educational administration. Many assistant principals do not want to become principals and relatively few principals and assistant/associate superintendents desire to be superintendent. The problem is compounded by the fact that there are very few blacks and other minorities in leadership positions and the number is declining. The problem is also worsened by the fact that women have made very limited inroads into educational administration. While women comprise a majority of the teacher ranks, less than ten percent are in high school principalships and very few in superintendencies. Thwarted in their efforts to secure leadership positions in education, more and more women and minorities are choos-

ing other fields that welcome their talents, further weakening the teacher and educational leadership pool for the future.

Before 2001 there will be a national crisis related to the availability of good teachers. During this crisis, there will be a push by some to reduce the position of teacher to that of a skilled labor. Proponents of this position will argue that with the availability of computers, persons similar in training to a clerk in a department store can be hired to instruct. They will argue that the pool would be bigger and the costs would be less. Opponents will argue that teaching requires special individuals with indepth training in motivation and human relations. They will argue that computers are good tools to aid in learning but can never take the place of the one to one interaction of two human beings. The battle will be a bloody one but in the end those championing teaching as a true profession will emerge victorious. As a result, teacher salaries will finally reach parity with those of other professionals. And, teachers will be looked up to in the community as a valuable resource. School boards will pursue good teachers like professional sports teams seek athletic talent. Hiring bonuses will be paid to young teachers graduating from colleges. Productive teachers will receive end of the year bonuses. School districts will have differentiated salary systems that provide pay in relation to market conditions so that a hard to find chemistry teacher may be making twice as much as a social studies teacher. As a result of all of this, the teaching corps of the 21st century will be the strongest and most talented ever -- but only in those school systems that begin now to prepare to seek the best and pay them accordingly.

How Will Instruction Be Delivered?

With the advances in the computer and with the increasingly sophisticated telecommunications systems available, students will learn in ways not even dreamed of a few years ago. In social studies, students studying Chinese culture will participate in live broadcasts via satellite between their classroom and Beijing. In a university studio, a professor of mathematics will broadcast a daily class in advanced calculus to students in remote, rural areas. Using an interactive video system, a teacher will give her students an opportunity to make decisions impacting on the country's economy after which they will experience the "real" results of those decisions displayed on a TV screen.

But computers will not be the only change in delivery of education. By 2001 businesses will have taken an even greater interest in education and will provide increasing numbers of on-the-job learning opportunities. It will not be unusual for a high school student in the year 2001 to take two or three classes at school in the morning and then spend the afternoon learning about industrial robotics by working with "the real thing" at a local car assembly plant. Nor will anyone think it peculiar that the head design engineer for a local computer manufacturing company has been "loaned" by the company to teach mathematics at the local high school.

Learning styles will greatly influence instructional delivery systems in

the year 2001. Students will be grouped by how they best learn as opposed to "abilities." Some students will find that most all of their educational experiences will be "hands on" because they learn best that way. Other students will work in a one-to-one relationship with the teacher because that approach works best with them. Some students will receive instruction in a very patterned, highly structured format complementing their dominant learning style. Others, however, will receive a potpourri of distinct learning modules, each of short duration, dealing with a wide array of topics, to address a learning style that prefers diversity.

One of the major changes in the instructional delivery system will come at the elementary school level. Because of the ever increasing world of knowledge, and its complexity, elementary schools will be held more and more accountable for teaching indepth subject content to five through 12 year olds. As a result teachers at the elementary level in the year 2001 will be "subject experts" similar to their colleagues in the junior and senior high schools. Instruction at the elementary school level will be changed to utilize these subject area specialists. In 2001, a first grader will have Ms. Jones for math, Mr. Smith for reading, Mrs. White for science, and Mr. Graves for social studies, each teacher being certified in his or her specialty. Gone will be the days that one teacher must prepare six lessons per day in six distinct subject fields, only one of which she or he is fully knowledgeable.

The other major change in educational delivery systems of the 21st century will be amount of schooling. By 2001 students will be attending school year round. And, the school day will be extended to mirror the adult work day. These changes will occur for several reasons. First, the school day will be lengthened so that working parents can drop the child off at school on the way to work and pick him or her up at the end of the day. Parents will no longer worry about the cost of before and after school hours child care or children home unattended. Second, the extended day will give schools an opportunity to bring more diversity to the curriculum with more time available to schedule fine arts, physical education, and elective courses.

Third, year round schooling also will be instituted to provide enough time to address all of the learning experiences society will require schools offer to children in 2001. Sufficient time will be available to teach the "basics," interpersonal skills, social skills, values, human sexuality, consumer skills, and environmental awareness. And fourth, year round schools will be implemented to reduce the tremendous "loss of learning" that now occurs over the summer, particularly with handicapped students and students in remedial programs. In 2001 a teacher will not have to spend the first six weeks of school reteaching what she thought was learned the previous year. Learning will be a continuous year round experience.

A side benefit of the movement of education to the full day, full year concept will be in staffing. Because teaching will move away from its current image as a part time profession, school systems of 2001 will be able to pay higher salaries and more benefits with less taxpayer reluc-

tance. Recruiting into the teaching profession will be enhanced as a result, and the image of education will become increasingly positive as the quality of the teaching corps continues to improve.

Who Will Pay For Education in 2001?

As the population ages and has less direct contact with K-12 schooling, funding education in the year 2001 will become increasingly difficult. This problem will be compounded by a growing taxpayer revolt in the 1990's that will ultimately reduce the amount of property tax dollars available to education and other governmental entities. Greater and greater pressure will be placed on state governments and local school districts to find alternative sources of financing. More and more funding will come from the state level with an accompanying loss of local control.

At the same time, the public will demand that the educational enterprise produce an increasingly competent, quality graduate. As a result, public K-12 education will become more and more like the private sector with parents having a choice of where their children will attend school. Parents of 2001 will "shop for the best buys" in education, selecting schools that provide the best programs at the most economical costs. Schools and school districts that are not productive, that don't market themselves well, and who do not heed the input of their consumers, parents and children, will cease to operate.

As education enters this competitive era, privatization will be a force to be dealt with. Some communities will become so disenchanted with the high cost and low productivity of their school systems that they will contract with business enterprises to provide all educational services. In other communities, taxpayers will decide that the cost of support functions associated with education should be the burden of those with youngsters in school. As a result, transportation and food service operations as well as athletic and other extra-curricular activities will not be provided, or will be provided on a pay-as-you-participate basis.

In 2001 the K-12 educational enterprise will have to fight like never before for adequate resources to carry out its mission. Successful school districts in the year 2001 will be those who diversify revenue sources, seeking funding through:

- establishment of foundations,
- sale of educational services such as facilities rental and instruction to businesses for retraining of employees,
- contracting with state agencies and private organizations to provide services to the elderly such as fine arts classes, counseling, and meals,
- providing low cost child care services,
- developing, copyrighting, and promoting learning approaches and systems to other educational institutions, and
- encouraging legislatures to expand the educational tax base beyond property tax to such sources as the lottery, educational impact fees, and luxury items.

Organization of the Book

If a school business manager is going to anticipate and in reality control change, he or she will have to be proactive in projecting future trends, issues, and challenges. The business manager must be aware of the major trends influencing the school business management function, when these trends will manifest themselves, what impact each will have on the business management function, and the methods and techniques that can be used to effectively implement and manage anticipated changes. In the chapters that follow, authors from around the United States provide the school business manager with some insights regarding the future of education in America and the impact on the school business management function. Organizational management trends, political and regulatory changes, demographic characteristics of the United States, forecasting techniques, budgeting trends, revenue outlook, and information management are addressed.

In addition, future trends in personnel issues, risk management, food service, school bus transportation, curriculum, computers, and facilities are highlighted.

At the conclusion of the book, Dr. Jack Lane challenges school business officials to look at themselves and their districts and to assess readiness for change. As he points out, change is inevitable. The only question to be answered is whether school business managers will be pulled, kicking and screaming, into the 21st century or lead the way through cooperative planning and decision-making.

The job tasks of the school business office are too broad and too complex to permit indepth coverage in one publication of all possible challenges and issues of the next decade. The editors and writers have attempted instead to create an awareness that change is real and inevitable. Our hope is that school business managers can use the information provided as a starting point for discussion with staff members, policy makers, and the community as to the need to prepare for the future now. If, after reading the book, a school business manager is inclined to look more closely at his or her own organization and its ability to handle the new challenges of the twenty-first century, the editors and authors will have accomplished their goal.

Chapter 1

Management Trends: Emphasis on Productivity and People

Grover H. Baldwin *Indiana State University*

Demands for accountability, better use of staff and resources, and greater productivity in the education of students will increase the need for effectiveness and efficiency of school management personnel at all levels.

As the leaders of school districts examine and adopt different forms of management styles, strategies, and tactics to fulfill their obligations, school business managers' duties and actions will change, too. Some of the management practices under review are new to education; some are a more timely restatement of ideas offered earlier in education history.

What can school business managers expect? Some of the trends that will confront them in the 21st century include strategic management and strategic planning, human resource accounting, various school site management programs, the growing use of decision support systems and electronic technology, intrapreneurship, and the recurring themes of cost/benefit analysis, cost effectiveness, and management by objectives.

Whether a particular district adopts a 21st-century system often depends on the particular climate of that district. However, school business officials already familiar with the trends developing in private industry will be far ahead of their colleagues in anticipating and predicting changes to come.

Strategic Management/Strategic Planning

In the past, education has been a stable and reactive enterprise. This will not be the case in the future. Either education must change or be changed. Critics have forced changes on the education establishment

with little input from the professionals who operate and are responsible for schools. As demand for accountability increases, school management personnel will try overtly to regain control of changes made in areas that fall within their responsibilities.

With powerful help from their clienteles, forward-thinking school administrators have begun to develop goals, restructure the organization, seek out resources, and demand greater accountability. Where this change has occurred in "lighthouse districts," the organization has changed from closed, stable, and reactive to a system that is dynamic, open, anticipating, creative, and interactive, permitted to grow and change to meet the challenges from outside. Such an approach has been labeled "strategic management," or has changed from administering the system to management/leadership of the system.

There are four basic elements of strategic management: strategic planning, organizational structure, resource acquisition and allocation, and accountability and control. School business managers are usually concerned with the final two elements. Understanding the concepts of strategic planning and organizational structure are also important because they have a direct bearing on the operation and responsibilities of school business managers.

Strategic Planning

Strategic planning is the process by which the goals and the mission of the organization are established. Through a series of forecasts and analyses of the external environment (the community and clientele), the management of the school district gathers information about the demands and needs of the clientele. Then management personnel take appropriate actions to plot the directions and necessary actions to achieve the goals and mission of the district.

Organizational Structure

Analysis of the organizational structure includes an examination of the formal lines of decision making (bureaucratic vs. democratic), the differing management/followership styles, and the various parts within the structure. It also includes analysis of informal lines of communication and decision making. The organizational structure must support the plans and goals developed in the strategic planning process. Inflexible organizational structures will not accomodate the rapid changes required of organizations who survive in the 21st century. School business managers must carefully review how the district and their own divisions are structured to meet the needs and demands that will be placed on education in the coming decades.

Resource Acquisition

Resource acquisition and allocation is more complex than in the past. In addition to an examination of revenues and taxation, capital goods, and equipment of the district, this element now includes a strategic profile of the programs and services offered by the district. Using a technique of "portfolio analysis," school business managers will need to

examine the various aspects of programs and services in light of the demand and the public support for these items. Once the programmatic data are gathered, including cost per unit, decisions must be made about which programs to keep, which to pursue further because they provide support for the district's operation, which programs should receive supplemental funding to make them viable, and which are items to be cut because they no longer have clientele support or fulfill the district's mission. School business managers will need to provide accurate information about cost and return on expenditures so that accurate decisions can be made. In addition, school-by-school and class-by-class breakdowns are needed to establish an exact ratio of cost to return.

Accountability and Control

The final element of strategic management, accountability and control, calls for greatly enhanced roles for school business managers. As overseers of the district finances, school business managers will be expected to develop and operate sophisticated reporting and tracking systems. These systems need to provide more accurate projections of potential gains and losses in revenues, needed funds for increased program development or enrollment adjustments, and potential funding sources from the local, state, federal, and school/business partnerships.

Strategic management insists on better utilization of revenues, closer cash flow control and management, and more effective use of revenues for programs, staffing, and the other resources needed to fulfill a district's mission. For school business managers, this demand for information will bring a greater use of technology, analytical techniques, and reporting capabilities. As the basic nature of district operations change, so will the roles and responsibilities of school business managers. These changes will force business managers to gain a working knowledge of curricular programs, student requirements, building operations, staffing patterns, personnel requirements, as well as the educational demands of their particular communities.

No longer will school business managers deal only with financial considerations. They will be required to play an integral part in planning the overall operations of the district. These new responsibilities will probably lead to further certification requirements, and as a result, school business managers will be better prepared to serve the best interests of the district, become more conversant with the "educational aspects" of the district, and improve and strengthen their roles as integral parts of the management team.

Human Resource Accounting

The second major management trend for school business managers is human resource accounting and its impact on the business operations of the district. This approach to management of personnel does not traditionally fall under the responsibility of school business managers. However, business managers may be called on to assist district and building management personnel in the implementation and monitoring of a

human resource accounting system.

Just what is Human Resource Accounting (HRA) and what promise does it hold for the schools? HRA should enable management to make better decisions about the planning, use, and economic costs/benefits associated with the acquisition, development, and utilization of the members of the school staff. It is an accounting tool that aims at increasing the productivity of the staff in the fulfillment of the district's overall mission. It demands that the employee be viewed not just as a cost to be paid out, but also as an asset that has benefit for the organization. Like all other assets, management must begin to invest in employee(s) to develop their full potential and increase their effectiveness, their rate of return, to the district. Since schools are labor intense, and since the labor force continues to change, both in age and ability, long-term employees become more valuable, especially when properly managed.

Three major components of human resource accounting are discussed below.

Human Capital Assets

First is the notion of human capital as an asset. With personnel costs in school districts reaching 85 percent of the total operating budget, the staff of the schools must be viewed as an asset that has meaning and benefit for the district. If the district is to reach its fullest potential, the skills of each individual must be considered an asset. As such, employees must be properly maintained and augmented through investment. This view leads management to monitor resource investment (acquisition, development, and allocation of personnel), resource maintenance (staff training and development), resource utilization (measured by performance), and return on the investment (including the value of loyalty of the public).

Nature/Measurement of Costs

Second, HRA focuses on the nature and measurement of costs. Labor costs initially include the aspects of recruitment, selection, placement, and orientation. However, they also include replacement costs, either positional or personal, and opportunity costs (using the individual in the most effective capacity, and the value lost if this is not done). These costs need to be measured accurately and trend data kept for the sake of consistent current and future management of the district.

Nature/Measurement of the Value of Human Capital

The third element of HRA is the nature and measurement of the value of human capital. All assets have value, but assets associated with human capital and its use within school districts bring a new dimension to the management of individuals. The human resource valuation portion of HRA consists of both the expected realizable value of an individual and the notion of goodwill. The realizable value is concerned with the productivity and performance level of the individual, including the general and specific skills which the individual possesses. Beyond the realizable value is the aspect of the probability of maintenance of

membership within the organization. There are replacement costs for those who leave the organization. These can be quite burdensome. Thus, maintaining an individual's satisfaction (both internal and external) becomes important in measuring the value of an individual.

Internal satisfaction deals with the elements of a job which are rewarding to an individual, perceptions of the rewards given peers, how close the personal goals of an individual match the goals of the organization, and the sense of accomplishment an individual feels. External satisfaction deals with the elements of organizational climate, credibility of the management, and compensation, as well as the twin conditions of job opportunities and the transferability of an individual's skills to other organizations.

The goodwill portion of the individual's value comes from the idea that non-human assets (buildings, books, equipment) have no value without the human element in the schools. Thus, unpurchased goodwill is derived from the difference between the value of the non-human assets and the value added by the human assets of the district. The measurement of this value comes from support of the community for staff and programs, assessment of development programs in their effort to meet district goals, and viability of the organization against its competition (private schools, home instruction, etc.), as well as the more traditional measures of level of achievement of the students within the curricular programs.

Human resource accounting and human resource management are elements of a management trend that will play an increasingly prominent role in school district management in the 21st century. Because the various parts of HRA must be valued and costs measured, school business managers will become key players in this trend, exchanging the traditional role as keeper of the books for a significant membership on the program evaluation management team.

School Site Management and Shared Decision Making

Even in the early '80s, the idea of managing a school district and the inherent sharing of decision making within administrative ranks, much less teacher empowerment, was still an idea whose time had not come. However, with the publication of *A Nation at Risk* by the National Committee on Excellence in Education, which placed greater emphasis and accountability on the building manager and staff, it became an idea whose time has arrived. Since then, a majority of major school districts across the nation have adopted and implemented some form of shared decision making and accountability. Districts such as Hammond, Indiana; Miami, Florida; and Rochester, New York, all have moved in the direction of assigning a greater level of responsibility and accountability to the building administrator and the building staff for the operation of the schools and their curriculum.

School site management is generally concerned with two aspects of school operation -- curricular decisions and fiscal decisions. Both demand new roles and responsibilities for school business managers. With

the shift to the building staff of such decisions as hiring, assignment, and replacement of staff, and their reward via merit pay and incentive plans, comes the added responsibilities of acquiring materials and equipment. In addition, school site management increases the fiscal responsibility of building level managers. Most building principals know very little about fiscal management. Neither do the teachers and parents who comprise a school site council.

One of the two new major responsibilities for business managers as a result of this management trend is the training and skill development of building principals, teaching staffs, and school site councils. Since school business managers have expertise in accounting and budgeting and since building personnel have different levels of expertise, business managers will need to train these individuals in these two areas. Business managers will want to establish a uniform system of accounting and reporting so that consistent and similar accounting and budgeting information is available to all school district management personnel.

The second major new area of responsibility is monitoring the fiscal arena of school site management. The keys to effective school site management are consistency, coordination, and cooperation among building principals. In addition, regular, timely, and useful accounting information should be shared with all other management personnel and the school board. Thus, school business managers will assume the role of active manager and will go beyond the stable and reactive stance in overseeing these two areas of fiscal responsibility. This line management position with active and continuous oversight responsibilities, along with other central office personnel, will be crucial to the success of school site management plans. Business officials will need to guard against the usurpation of school site management by the central office and see that this management option is given a chance to flourish as a viable entity in school management practices.

Decision Support Systems/Management of Information

While microcomputers have had increased acceptance within schools, one of the major problems yet to be resolved is the effective use of technology for school management. This concern touches all aspects of school management. The need for accurate information and the capability of sharing information in the decision-making process, will lead to the development and implementation of decision support systems (DSS) that go beyond the fundamental management of information.

While routine problems can be handled by current computer technology, the growing complexity of schools and their unstructured problems call for a different management process. Decision support systems are characterized by interactive computer-based systems that allow decision makers to utilize their own management styles in dealing with and manipulating information. Management personnel can use the facts of the school operation, combined with rational, quantitative decision-making tools, to optimize the resource acquisition and allocation process to best fulfill the goals of the district.

The change from an electronic data processing (EDP) and/or management information system (MIS) to a decision support systems environment will be necessary because of other management trends. With the current EDP environment in schools, the emphasis is on data storage and processing, on efficient transaction processing, on scheduling and record keeping, on producing reports, and to a limited degree on integrating databases. The EDP approach has focused most readily on the building principal and the generation of raw data and files. This form of computer use has traditionally given way to the MIS approach which emphasizes an information focus on middle management personnel, central office level, and the integration of EDP jobs with the needs of overall district management, combined with integrated database searches and report generation.

Decision support systems will permit coordination and communication between and among the various levels of the organization and will broaden the decision-making base for the management personnel in the district, both individually and collectively. This technological advance is key to the management and leadership for schools in the 21st century. DSS helps management personnel move toward a more anticipatory, creative, and exploring environment so schools can achieve their established goals. Decision support systems will enable management personnel to make better and more informed decisions and to implement those decisions. The emphasis of DSS is on the improved effectiveness and efficiency of the organization.

Part of the DSS implementation process will call for a change in philosophy of upper level management personnel of school districts. To ease the implementation of such trends as school site management, the use of DSS will permit careful, studied, and rational approaches to both structured and unstructured problem solving. DSS will permit central office management to oversee data and decisions to be certain all levels are comfortable with the effectiveness and efficiency of the organization.

School business managers, as coordinators of district budget and fiscal information, will play an integral part in the DSS implementation process. They must be able to use and adapt to such quantitative decision-making tools as multi-criteria decision making, queuing, linear programming, and decision trees. School business managers familiar with these techniques will provide leadership for other school managers in meeting the challenge of implementing DSS.

Other New and Renewed Trends in Management

Three additional management trends are in the offering for the 21st century and have a direct bearing on school business managers.

Management by Objectives Revisited

The first of these trends is the revival of, and increased demand for, cost/benefit analysis techniques and management by objectives. While the use of these techniques is not new, the continued calls for accountability and the demand of the public for effectiveness in providing for the

education of students has led to renewed emphasis on these areas in schools. The current emphasis on cost/benefit effectiveness has led school managers at the national, state, and local level to devise means to more accurately measure the benefits and effects of the increased levels of inputs against the outputs of education. While such techniques raise the timely and unresolved questions of equity, access, fairness, and justice, the demand for accountability has pushed for the establishment and fulfillment of goals and the need for hard evidence to note their achievement.

The problems inherent within the cost benefit/cost effective models are still present. However, with the movement towards strategic management, human resource accounting, and decision support systems, the measurement problems may well be resolved. The school business manager will be responsible for providing cost data and for reducing the complexities of budgeting and accounting to a level that may be understood by all concerned parties. This means that the school business manager must understand the strengths and limitations of the various cost/benefit, cost/effective, and production/function models being devised by the reformers. It will also call upon this individual to be able to work the model and to instruct those in the management ranks concerning its operation.

Intrapreneurship

The next management trend is new and derives its strength from the individualistic nature of the classroom and school operation. With the development of school site management comes the "intrapreneurship" of the individual building principal and the individual classroom teacher. Entrepreneurs work outside the system to bring about new products and services. By contrast, "intrapreneurs" operate in a similar fashion, but within the organization, according to the book *Intrapreneuring*. Education has been a highly regulated, and controlled, closed environment. This climate has led to a limiting effect and, if the reformers can be believed, a lessening of the spirit of growth and innovation. What is being called for within the realm of school site management, shared decision making, and teacher empowerment, is not the takeover, but the makeover of the school into an organization where the stakeholders combine their vision and action to provide the services needed for students to learn. Rather than work outside the system, educational "intrapreneurs" are encouraged to work within the system to devise, implement, and evaluate the effective means to educate students. This calls for leaders who are imbued with a risk-taking capacity and who have the vision to explore and create school climates that permit and encourage such activity.

"Intrapreneurship" will cause the school business manager to adopt a new position and role within the system. First, while maintaining the fiscal reporting system as required, the school business manager will have to work with line management in devising and seeking creative funding opportunities to permit such "intrapreneurial" activity. Second, the school business manager will have to understand the operation of the

individual school, the management style of the building principal, the organizational climate of the school, and the goals and impetus of the individual "intrapreneur." This change will result in more effective and beneficial operation of schools for the education of students.

Politics and Policymaking

The third trend is the renewed emphasis on politics and policy making in education. This process has taken on new meaning with the demands for educational reform emanating from the state and local level. This trend demands a new role and responsibility of local school district management personnel within the process. The various state legislators and governors, allied with members of the business community within the states, have joined to set the goals and directions for education. As a result, local school district management personnel will have to get involved in the active politics and policy-making process within their state. This calls for each management team member, and especially the school business manager, to understand, present, and be comfortable with the "friendly facts" of Robert Waterman from the book, *The Renewal Factor*, that are used to describe and illustrate the establishment and fulfillment of the goals and objectives for their local district.

In addition, members of the management team will have to work with management personnel of other districts to present evidence of the effectiveness and efficiency of the schools towards stated goals and to assist in the formulation of the state educational policy. The old adage that "it's a dirty job, but somebody has to do it" applies directly to the active line school managers, and to the school business manager specifically. This individual, with the command of both the numbers and their relationship to effectiveness and benefits, will be on the front line in the policy-making process. This position of greater visibility will mean that, like the more traditional line management personnel, the school business manager must also adopt a more risk-taking capacity and become anticipatory, creative, and exploratory in looking for solutions and policies that will drive the schools of the 21st century.

Conclusion

In exploring the trends in management as they pertain to school business managers, the theme that comes through is that these individuals will play a larger role, with greater responsibility, than has been the case in the past. The school business manager will become an active line manager with oversight and coordination responsibilities as these trends emerge and take hold in the management of school districts.

The position that was once secure, routine, and somewhat predictable will become one that is challenging, vital, and complex. The growth of strategic management and strategic planning, the movement into human resource accounting, the development and implementation of decision support systems, the change to school site management and shared decision making, and the increased emphasis on accountability and policy making, will place this person in the active management circle.

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Chapter 2

General Trends: Accountability, Professionalism, Regulation, and Politics

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The basic responsibilities of a school business official are unrelated to the size of a district. A business official from a larger district may have additional support staff to assist in carrying out some of the areas of responsibility, but the responsibilities are the same as in a smaller district. Because smaller districts have fewer staff, the business official is a "jack of all trades," providing the district's expertise in all areas of business function.

Perhaps the greatest challenge in serving as a school business official lies in the fact that the scope of the position's responsibilities is constantly changing. As specific areas of responsibility become more complex, the business official, particularly in smaller districts, lives in a world of increasing pressure. The intent of this chapter is to present a few of the current trends and associated problems affecting the role of the school business official.

Increased Accountability

Of all the issues facing public education in the future, accountability may be the most difficult. As public concern with education grows, the demand for accountability will increase. On the whole, public education has failed to adequately address this concern. Instructional program and methodology aside, school districts are going to be challenged to prove that the current system of delivering educational services is cost effective. The majority of this task will fall squarely on the shoulders of the school business official.

This issue will require a difficult review and evaluation of the services

being delivered. What services should be, and can be, best provided by public education? Should current services be continued and, if so, at what levels? Should new services be added? Are delivery systems effective? Should new techniques be implemented? Would it be more cost effective to contract for the service?

Before cost effectiveness can be addressed, it will be necessary to answer questions regarding appropriate measures and standards. Can agreement be reached on what constitutes cost effectiveness of programs? How will social value be accounted for? What will be the effects on smaller schools and districts? Can classroom instruction be fairly measured on a cost basis? The list of problems goes on.

Increased Regulation

School business officials face complying with increased regulation in all areas of responsibility. Such regulations are often communicated in the form of extensive written documentation which may be highly technical in nature. Most regulation results in some form of additional activity which must be monitored, inspected, and documented, usually through a formal report scheme. Compliance with mandated programs results in a cost to the district which may represent either an additional expense, should funding be available, or the reallocation of existing resources at the sacrifice of current services. The amount of this cost will be related to the level and type of activities required. Mandated programs have historically provided little or no funding for required activities. However, it is interesting to note that nearly all regulated programs involve fines or penalties for failure to comply.

Increased Professionalism

Over the past several years there has been a growing emphasis on promoting and improving the degree of professionalism within the field of school business management. For example, state and national associations such as ASBO have developed their own professional registration programs. Most professional organizations offer some form of training program. At least one state mandates the licensing of treasurers and requires school boards to employ a licensed treasurer.

Of increasing concern to school districts and school business officials is the issue of certification. There is a growing movement to require the certification of all business officials. The merits of such a program notwithstanding, the impact of such a program will be widespread.

There will be an obvious effect on existing business officials who may face certification requirements. What will the standards be? Who will set these standards? Will there be reciprocity between states? What credit will be given for experience? Will experience be required? Will some number of college credit hours be mandated? Must an applicant possess a degree and, if so, at what level?

In the near term, a shortage of certificated individuals will create recruitment problems for all school districts. A lack of qualified individu-

als will likely increase salary levels for business officials, resulting in additional cost to districts. Smaller districts with limited resources may tend to lose experienced people to larger districts able to pay larger salaries. In fact, smaller districts could become more of a training ground, giving needed experience to those seeking entry into the system.

There will also be a significant effect on those schools and educational programs which prepare individuals for certification as a school business official. Currently, there is a lack of university programs which train students in this area. One option is for colleges and universities to respond to the need. Another option is for a professional association such as the Association for School Business Officials International (ASBO) to set up a professional licensing board similar to that of the American Institute of Certified Public Accountants (AICPA).

Safety and Health

Safety and health concerns are receiving significant regulatory attention. Asbestos abatement is the forefront of activities involving hazardous materials. In October 1986, the federal Asbestos Hazard Emergency Response Act (AHERA) was passed directing the Environmental Protection Agency (EPA) to establish rules and regulations addressing asbestos-containing materials (ACM) in schools. Specifically, EPA was directed to address the issues of: (1) identifying, (2) evaluating, and (3) controlling ACM in schools. The AHERA regulations became effective in October of 1987.

PCB's, underground storage tanks, radioactive materials, and radon gas are but a few of the other known issues to be dealt with in the area of hazardous materials. It's anyone's guess as to how many unknown substances lie dormant, awaiting discovery.

These problems are highly technical and specialized in nature. Solving many of them will require extensive dependence on consultants, specialized training of selected district staff, or both. The costs associated with the correction of such problems can be astronomical. In the asbestos situation, the often-preferred solution of the complete removal and clean up requires specialized equipment and training. It will generally not be cost effective for a district to purchase the needed equipment and train its personnel. Another consideration in contracting for services instead of accomplishing the task in-house would involve transferring future liability to the contractor. The source of funding for these programs is a significant question.

Another example of legislation which is having a significant impact on school districts is the federal Consolidated Omnibus Budget Reconciliation Act (COBRA) of 1986. This act requires employers sponsoring group health plans to offer employees and their families the opportunity to purchase a temporary extension of health coverage at group rates under certain conditions known as the "qualifying event." Examples of these conditions include death of a spouse or parent, termination of a spouse's or parent's employment, divorce or legal separation from a spouse or parent, or the spouse or parent becoming eligible for medicare.

This act has required the implementation of a considerable recordkeeping/notification system in most districts. It is also expected to result in an increase in the cost of health care premiums for districts.

Fiscal Services

In the area of accounting, there is a push toward greater comparability with the private sector with its Financial Accounting Standards Board (FASB). The establishment of the Governmental Accounting Standards Board (GASB) in 1984 and its resulting pronouncements have, and will continue to have, a significant impact on the school district financial accounting and reporting system. GASB is the standard-setting body for establishing generally accepted accounting principles (GAAP) for all governmental entities, including school districts. GASB has been actively examining and researching the basic foundations of governmental financial accounting and reporting. In December 1987, GASB issued a proposed Statement of Governmental Accounting Standards, Measurement Focus and Basis of Accounting-Governmental Funds. The requirements of the proposed statement would be effective for financial statements for periods beginning after December 15, 1989. In addition, model legislation to mandate conformity with generally accepted accounting principles has already been developed and is being recommended to states for enactment.

Newer and better budget/accounting systems will continue to be developed as improvements over the current system. Never mind that the current system was implemented, often as the result of some mandate, because it was an improvement over the old system. Examples of such systems include line item budgeting, management by objectives, zero-based budgeting, and school site budgeting.

The federal government has continually attempted to restrict the ability of non-federal entities to issue bonds and notes which are exempt from federal income taxes. The Tax Equity and Fiscal Responsibility Act of 1982 gave Congress the power to remove the tax exempt status from unregistered bearer bonds. This meant that school districts could no longer issue the traditional tax exempt bearer bonds. Instead, all tax exempt bonds issued must be registered, which resulted in an additional cost in the form of a fee to the registrar. Whether the cost of registration was offset by the savings generated as a result of the district's not having to process bond coupons is debatable.

The federal Tax Reform Act of 1986 included two provisions which affected municipal tax exempt bonds. One provision had the effect of subjecting the interest on municipal tax exempt bonds, issued after August 1986, to the new alternative minimum tax (AMT), which reduced their marketability for personal investment portfolios. The other provision of the law requires state and local governments, including school districts, to rebate excess interest, known as arbitrage, earned on invested municipal bond proceeds. This legislation has not only reduced potential interest earnings from the investments program, but has also increased the cost of borrowing.

Changing Technology

Perhaps nowhere is the impact of changing technology more evident than in the area of computers. It was not too long ago that only large or very wealthy districts had access to a computer system, especially within the business service area. Such access was generally contracted through a regional intergovernmental computer center or private firm. As the cost of computer systems declined, more districts were able to participate in such arrangements. Decreased costs soon allowed larger districts to purchase their own in-house systems. There was little need for the smaller district's business official to be knowledgeable in computer systems, since most small districts were contracting for services while the remainder maintained manual systems.

The advances in microcomputer technology have brought about major changes in school districts. The relatively low cost of the microcomputer and associated software has afforded nearly all school districts some degree of computerization. As these machines have become more powerful and less expensive, it has become difficult to function without them. In addition to performing the clerical and administrative tasks so basic to the business function, they now permit direct interaction with mainframe computers. These machines can also talk to one another through a technique called networking. Individual networks can then be connected to other networks, and so on.

The microcomputer is well suited for a seemingly endless list of business-oriented tasks. Best of all, they are not limited to one type of task like the word processing machine. Examples of uses made within the business function include: accounting, budgeting and reporting; fixed asset accounting; transportation scheduling and routing; school boundaries; inventory control for central stores and purchasing; energy conservation, work order systems, maintenance scheduling for physical plant; and computer aided design and drafting for facilities planning.

The microcomputer age has not come without its problems for school business officials, however. Although the expense has decreased significantly, computers do cost money. There is the problem of selecting both hardware and software that is appropriate and compatible. Compatibility is an important issue as a district purchases more and more computers. Training of staff, particularly less adaptable employees who may be easily intimidated by the computer, can be a challenge and represents an additional expenditure. Security of both equipment and data is an important consideration. Microcomputers are easily moved and are highly desirable items, subject to theft and mysterious disappearance. They often contain confidential data which also must be protected from unauthorized access. The need for protection of payroll records seems obvious. However, other records such as those used for automated disbursements, accounts receivable, and cash receipts, etc. require protection as well. Records involving employees and students are also confidential in nature.

Equipment maintenance takes on an increasing importance as an operation becomes more and more dependent on computer processing. It

is necessary to plan for down time for preventative maintenance. Maintenance adds an additional cost to be included in the annual budget. It is also essential to plan for backup in the event of a system failure, whether it be a hardware problem, a software problem, or both.

Lastly, in the fast changing microcomputer world, obsolescence, both of equipment and software, presents yet another challenge. Remember, what is state-of-the-art today won't be tomorrow.

Funding

As government services grow and require ever increasing tax dollars, the competition among the varying public sectors will increase. Those sectors providing a service that is perceived as beneficial and necessary by the general public will receive funding more readily. The aging of the population, coupled with perceived decline in the quality of public education, will continue to create a difficult environment in which to obtain tax support.

An additional funding issue lies in the disparity between poorer and wealthier districts. Equity in funding will become an even greater problem as fundings become tighter.

Political Environment

It is important to recognize that the world of the school business official is very much a political environment in which multiple political arenas operate simultaneously. These political relationships have a direct effect on the business official and how the business services are provided. For example, there is often pressure on the business official, particularly in smaller districts, to patronize local vendors and to "keep the local tax dollars in the community." This is true even though "outside" vendors may provide the same, equivalent, or better goods and services at a lower cost.

A listing of some major political relationships follows:

- The normal politics which exist within any organization.
- The relationship with the local school board.
- The relationship with parents and those members of the public who are directly involved with the district.
- The relationship with the local community, including the local media, local businesses, and leading citizens.
- The relationship with other educational districts and governmental agencies, including the state and federal departments of education.
- The relationship with elected state and federal officials.

Other Areas

The trend of increasing liability exposure seems certain to continue. In addition to the more traditional exposures, school districts are being held liable for providing an "appropriate education" for all students.

This continues to be an issue in the special education programs serving handicapped children. This trend has already extended into what are now being referred to as "at risk" programs. Specialized programs such as talented and gifted are likely to be next.

Shifts in population can have a significant effect on school districts, especially when these shifts are relatively sudden. Such shifts are generally related to changes in economic activity. Examples of this phenomenon are the development of what is known as the Silicon Valley in California, or the relatively rapid expansion in the petroleum industry and its sudden crash in Texas. The districts suffering a loss of population generally experience a loss of tax revenue, vacant school buildings, and cutbacks in program. On the other hand, the districts experiencing population growth must respond by expanding programs and facilities. A worst-case scenario might be one in which there is a sudden economic boom with its influx of people and associated problems. These additional people stay long enough for the long term financing of additional services and facilities to be completed. When the boom ends, people leave, and the remaining taxpayers are left with uncompleted or empty facilities, plus the burden of a long term debt service. The cost of this debt service must now be borne by a much smaller taxpayer base.

Additional areas that are always subject to continuing regulation include student transportation, risk management, school lunch program, maintenance and operation of plant, and facilities planning, construction, and alteration.

Summary

There are ever-increasing pressures on school business officials. There is pressure to perform in a more efficient and cost effective manner. There are regulatory pressures mandating certain programs, as well as specifying activities and how they will be carried out. There is a movement toward greater professionalism within the field. School business officials are being asked to do more, very often with fewer resources. The challenge is there for those individuals willing to tackle the task.

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Chapter 3

Demographic Trends: Students of the 21st Century

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Introduction

The business of school districts is to educate children. Since education is a state right, all state constitutions have clauses mandating free, adequate public education for all children in the state. However, problems arise for policymakers along at least two dimensions. The first is the determination of who should be educated. For example, should school districts offer pre-kindergarten schooling? Gifted & talented programs? Adult education? Summer school? With the recent advocacy of "life-long" education from the cradle to the grave, this question has important implications for the educational industry. A second dimension has a focus on the curricular offerings of the districts concerning both the type and amount of education received by a particular age group or classification of student. For example, should all students receive a standard educational offering, or should there be different types of curriculum offered to different types of students? Should the school year be extended from 180 to 210 or 240 days?

All of these policy questions have a common variable -- the student. Knowledge of the characteristics of the students who receive educational services is critical to the processes involved in planning and organizing efficient and effective schooling. Because the general population is constantly changing, the characteristics of the students being served by schools is also changing. As the student population changes, major policy questions regarding the educational offerings and the clienteles to be served by schools need to be reexamined. One of the primary criticisms of educational institutions is an alleged unresponsiveness to the

educational needs of the changing society which it serves.

Demography is the science of describing and analyzing the characteristics of populations. Of particular importance to educators is the age profile of the general population, with special attention given to the characteristics of the school-aged population. The scope of school district demographic analysis, broadly defined, includes the processes of enrollment forecasting, district census, student residential analysis, and trend analysis of student characteristics. Most of these tasks are typically delegated to the school business official. As a member of the decision-making team of a school district, the business official is the person most likely to be expected to know the demographics of the district.

Table 1
Public Education Agengies

	Total Agencies	Regular Districts[1]		Regional Agencies[2]		State Agencies[3]		Federal Agencies[4]	
		No.	%	No.	%	No.	%	No.	%
U.S.	17,045	15,713	92.2	1,037	6.1	188	1.1	107	0.6
Reporting	16,317	15,317	92.2	1,005	6.0	188	1.1	107	0.6

[1]Includes supervisory union components
[2]Includes supervisory union administrative centers
[3]Operated by the state
[4]Operated by the federal govenment and other agencies

Source: Common Core of Data Education Agency Universe, 1986-87

Table 2
Elementary/Secondary School Districts

Size of Agency	Agencies		Students	
	No.	%	No.	%
Total	15,713	100.0	28,743,330	100.0
25,000 or more	173	1.1	10,821,351	27.9
10,000 to 24,999	447	2.8	6,606,356	17.1
5,000 to 9,999	914	5.8	6,382,468	16.5
2,500 to 4,999	1,823	11.6	6,363,009	16.4
1,000 to 2,499	3,504	22.3	5,690,889	14.7
600 to 999	1,754	11.2	1,370,543	3.5
300 to 599	2,257	14.4	98,167	2.6
1 to 299	4,071	25.9	521,546	1.4
Size not reported	769	4.9	---	---
Median Size			803	

--- Data not reported

Source: Common Core of Data Education Agency Universe, 1986-87

This chapter provides an overview of the demographics of education limited for simplicity to the United States. However, other countries also have experienced major demographic changes and much of the analyses may apply to those countries as well. It begins with a presentation of the historical trends of the key variables that affect educational policy. Next comes a statistical description of educational demographics in the late 1980s, followed by projections into the 21st century of key demographic characteristics. Such information is necessary if used in the policy and decision making processes of school districts. The implications of the demographic data will be highlighted throughout this discussion. The importance of the information for the role of the school business official will also be stressed.

Historical Trends

The school aged population (ages 5-17) reached a maximum of 52,526,000 in 1969-70, and began declining. As a percentage of the total population, the school aged population was at a low of 20.3 percent in 1949-50, increasing to 25.8 percent in 1969-70, and declining again to an all time low percentage of 19.0 percent in the mid-1980's. Since 1984, K-12 enrollments have exhibited a slight increase, with most of this coming at the elementary level.

The total number of children in school reached a maximum in the early 1970's at 46,000,000 and declined to 39.2 million in 1980s. The percentage of the total population in school has been steadily increasing to a high of 87.4 percent in the 1984-85 school year. The average number of days of school each year has remained approximately 178 days since the early 1950s; however, the average number of days of school attended by school-aged children has stayed at 161 since the 1950s.

Education is big business. Total revenues for public K-12 education, in current dollars, has risen to approximately 140 billion in the 1980s. Of that amount 6.5 percent has come from the federal government, 48.8 percent from the state governments, and 44.7 percent from the local governments. The share paid for by the federal government reached a maximum of 9.8 percent in 1969-70, while the shared paid for by state governments has been steadily increasing to new highs in the 1980s.

Current Demographic Status

Tables 1 through 6 here and on the following pages display the status of many of the important policy related demographic variables of U.S. education. This information can be used as a benchmark to compare information presented later showing projected data into the 21st century. Table 1 shows the number and types of school districts in the U.S. as of 1987. Table 2 shows the breakdown of school districts by size, as well as the median size of U.S. districts. This table clearly displays the small, rural nature of many districts.

Table 3 shows the change in the numbers of students and teachers in U.S. schools during the last few years. The number of students has

Table 3
Changes in Student Population and Teachers

	Actual Fall 1984-85	Actual Fall 1985-86	Actual Fall 1986-87	Estimated Fall 1987-88
Enrollment	39,295,210	39,508,625	39,837,459	40,200,086*
% Change		+0.54%	+0.83%	+0.91%
Teachers	2,168,298	2,206,884	2,243,370*	2,276,367*
% Change		+1.75%	+1.67%	+1.47%

*Imputed by the Center for Education Statistics (CES)
Note: Estimates were those reported as of December 1987

Table 4
Changes in High School Graduates and Total Expenditures

	1984-85	1985-86	1986-87	1987-88
Graduates	2,414,020	2,382,457*	2,428,285*	2,468,646*
% Change		-1.3%	+1.9%	+1.6%
Expenditures	$126,337,491	$136,999,037	$146,115,490*	$155,462,636*
% Change		+8.4%	+6.7%	+1.6%

Expenditures in Thousands
*Imputed by the Center for Education Statistics (CES)
Note: Estimates were those reported as of December 1987

Table 5
Estimated Pupil/Teacher Ratio and Per Pupil Expenditures

	Enrollment	No. Teachers	Current Expenditures (in thousands)	Pupil/ Teacher Ratio	Per Pupil Expenditure
Total	40,200,086*	2,276,367*	155,462,636*	17.7*	$3,867*

*Imputed by the Center for Education Statistics (CES)
Note: Estimates were those reported as of December 1987

Table 6
Population by Age Group
(in thousands)

Age Group	1975-76	1985-86	%Change	Projected	%Change
5-13	33,919	30,111	-11	34,435	14
14-17	17,128	14,866	-1	14,082	-5
18	4,256	3,634	-15	3,332	-8
18-24	28,005	28,742	3	23,702	-18
25-34	31,471	42,839	34	40,520	-4
35-44	22,831	31,839	39	41,997	32

Source: U.S. Bureau of the Census, 1988

increased by 905,000, or 2.3 percent, while the number of teachers has increased by 108,000, or 4.98 percent. Since the labor costs of education account for 70 percent or more of most school district budgets, the percentage increase in the number of teachers shows one reason why the costs for education, shown in Table 4, have been increasing dramatically in the 1980s. Table 4 displays recent changes in the number of graduates and the total expenditures for K-12 education for U.S. schools. Finally, Table 5 shows the statistics for the 1987-88 school year for the number of students, the number of teachers, total expenditures, pupil/teacher ratio, and per pupil expenditure.

Table 6 shows the number of persons in selected age groups for the period 1975 projected through 1995. In the past decade, the number of school aged children has dropped between 10 percent and 15 percent in each age category, while the number of adults has risen in every instance. This is the result of the baby boom children getting older. The projected populations through 1995 show that the elementary school population is expected to increase by 14 percent, while the older children will continue decreasing in population. This has great implications for American education. In the 21st Century these elementary children will get older, increasing the middle and secondary school enrollments. Eventually, the elementary school population will stabilize and begin to

Table 7
School-Aged Population by Age, Race, and Sex
(in thousands)

		White		Black	
	Total	Male	Female	Male	Female
Under 5	18,128	7,527	7,148	1,380	1,341
5-9	17,291	7,172	6,804	1,354	1,319
10-14	16,564	6,849	6,492	1,314	1,277
15-19	18,610	7,758	7,449	1,401	1,383

Source: U.S. Bureau of the Census, 1988

decline as the expected number of births decreases.

Educational planners should also be concerned about the change in the nature of the students that will be coming to school. Table 7 shows the makeup of the school-aged children in the mid-1980s, while Table 8 shows school enrollments for groups of school aged children by age, race, and sex for that same period. Table 9 shows the years of schooling completed for the various groups in 1985.

Projections for the Future

The historical trends and current statistics clearly show that the number of children in the schools has been changing dramatically. Educators have painfully experienced the severe enrollment declines of the 1970s and early 1980s, followed by the increases at the elementary level in the mid-1980s. What may be expected into the 21st century? Table 11 displays some of the projections for Vital Educational Statistics through 1996. The enrollments for all levels of K-12 public education are expected to increase in the period 1986 through 1996, in some cases rather dramatically. The late 1980's and early 1990's will provide substantial increases in the elementary school students. As these children grow older, the enrollments in the middle schools may be expected to

Table 8
U.S. Population Enrolled in School

Sex & Age	All	White	Black	Hispanic
Total 3-34	48.3%	47.8%	50.9%	47.7%
3-4	38.9	38.6	42.7	27.0
5-6	96.1	96.4	95.7	94.5
7-9	99.1	99.3	98.4	98.4
10-13	99.3	99.3	99.5	99.4
14-15	98.1	98.1	97.9	96.1
16-17	91.7	91.6	91.7	84.5
Male 3-34	49.2	48.5	52.6	47.5
3-4	36.7	37.3	34.6	26.4
5-6	95.3	95.7	94.6	95.3
7-9	99.0	99.3	98.2	98.9
10-13	99.2	99.2	99.1	99.1
14-15	98.3	98.2	98.2	96.2
16-17	92.4	92.5	91.8	88.9
Female, 3-34	47.4	47.0	49.4	47.9
3-4	41.2	39.9	50.2	27.7
5-6	97.0	97.1	97.1	93.7
7-9	99.2	99.3	99.7	98.0
10-13	99.4	99.3	99.9	99.7
14-15	97.9	97.9	97.6	96.0
16-17	90.9	90.8	91.6	80.0

Source: U.S. Bureau of the Census, 1988

Table 9
Years of School Completed

	Total pop.	Less than 8	8	1 to 3	4	1 to 3	4	5 or more
18 & up	171,368	6.5	5.7	13.2	39.1	18.0	10.4	7.0
Men								
18 & up	81,451	6.9	5.6	12.8	36.1	18.1	11.4	9.0
Women								
18 & up	89,917	6.2	5.8	13.5	41.9	18.0	9.4	5.2
White								
18 & up	148,128	5.8	5.8	12.4	39.8	18.2	10.7	7.3
Black								
18 & up	18,606	12.1	5.4	20.3	36.1	16.5	6.0	3.4
Hispanic								
18 & up	10,849	25.6	8.0	17.0	29.6	12.4	4.3	2.9

Population in thousands.
Source: U.S. Bureau of the Census, 1987

increase, especially in the period 1992-1996. High school enrollments can be expected to continue experiencing moderate declines through the early 1990's, followed by increases around 1994-1996, which will continue throughout the 1990s.

Figures 1 and 2 graphically show these projections. In Figure 1, the

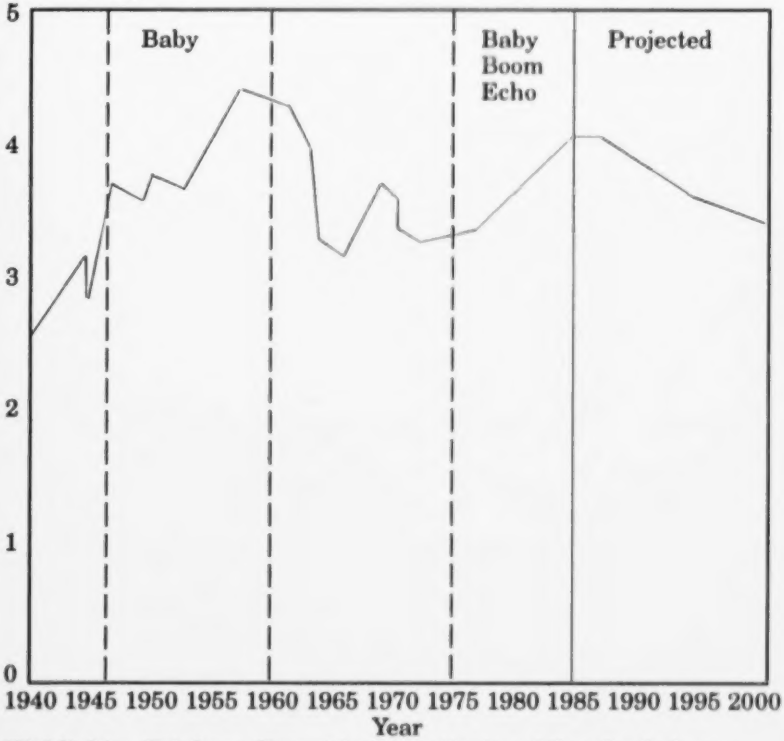
Table 10
Vital Educational Statistics 1975-1996
(in thousands)

	1975-76	1985-86	%Change	1995-96 Projected	%Change
Enrollment					
Total	44,791	39,513	-12	44,238	12
K-8	30,487	27,047	-11	31,635	17
9-12	14,304	12,467	-13	12,603	1
High School Graduates					
Total	2,837	2,378	-16	2,207	-7
Classroom Teachers					
Total	2,196	2,210	1	2,599	18
Elementary	1,180	1,230	4	1,465	19
Secondary	1,016	981	-3	1,134	16
Teachers per 1,000 pupils					
Elementary	46.0	50.6	.10	51.6	.02
Secondary	53.1	64.4	.21	71.6	.11

Source: Digest of Educational Statistics, CES, 1987

projected birth rate shows increases through 1988-89, with a moderate decline thereafter. However, the children born in the period 1977-1988 will progress through the schools, bringing increases for every grade level as they grow older. For example, the children born in 1988 (the

Figure 1
Number of Annual Births 1940-2000
(in millions)



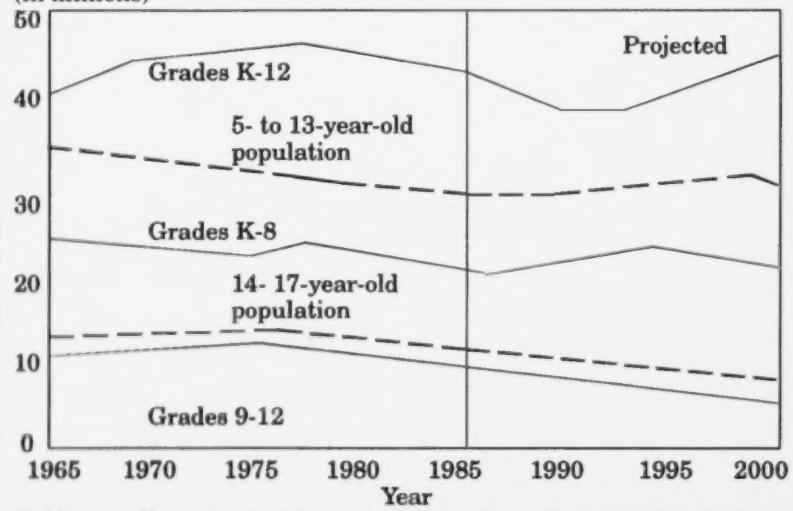
Highlights: Total enrollment in the nation's public schools is expected to reach 45.3 million by the year 2000, approaching the peak of 46.1 million experienced in 1971. The peak year 1971 reflected enrollments of children born during the high-birth years of the 1950s and early 1960s (the baby boom). By the year 2000, public enrollment is projected to be about 5.6 million higher than the 1986 level of 39.7 million. Enrollment in public elementary schools (grades K-8) is expected to rise to 31.6 million by the year 2000 when it will be 4.2 million larger than the 1986 level of 27.4 million. Enrollment in public secondary schools (grades 9-12) is projected to reach 13.7 million by the year 2000, when it will be 1.3 million over the 1986 level.

peak birth rate year) will reach 9th grade in the year 2,002! Thus, increases in the birth rate in the early and mid-1980s will affect American educational enrollments well into the next century.

Figure 2 displays the public school enrollments through the year 2000. This graph shows that the enrollments will continue to increase in the late 1990s, and then begin to stabilize in the period 1998 through 2000.

Statistics in Table 10 as discussed on the previous pages show the impact of this change in the K-12 enrollments. First, the number of graduates will continue to decline through 1996 because of the decline in the number of secondary students. However, the number of graduates

Figure 2
Public School Enrollment 1965-2000
(in millions)



Public enrollment in kindergarten through grade 8: Public enrollment in grades K-8 decreased from 32.6 million in 1969, its peak year, to a low of 26.9 million in 1984. Enrollment climbed to 27.4 million in 1986 (Figure 2). Paralleling the increase in the 5- to 13-year-old population, public enrollment in grades K-8 will increase to 31.9 million by 1997 and then decline to 31.6 million by the year 2000.

Public enrollment in grades 9-12: Public enrollment in grades 9-12 peaked at 14.3 million in 1976 (Table 1). Enrollment then declined to 12.4 million in 1986 as smaller cohorts (groups of children born during the same year) of the late 1960s and early 1970s entered secondary schools. Paralleling the decline in the 14- to 17-year-old population, public enrollment in grades 9-12 is projected to continue to decrease to 11.3 million by 1990 and then to begin to increase, reaching 13.7 million by the year 2000.

Table 11
Population Projections, 1987 to 1000

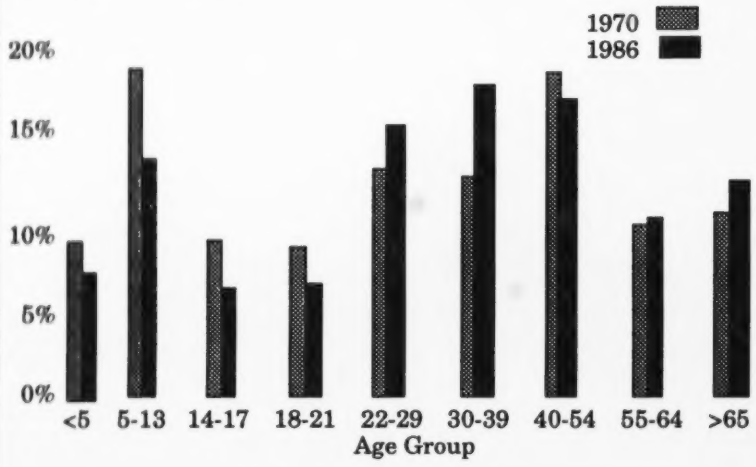
Age, Sex, or Race	Population 1987	1988	1989	1990	1995	2000	Percent Distribution 1990	2000	Percent Change 1980-1990	1990-2000
Total pop.[1]	243,827	246,048	248,251	250,410	260,138	268,266	100.0	100.0	9.9	7.1
Under 5	18,198	18,269	18,413	18,408	17,799	16,898	7.4	6.3	11.8	-8.2
5-17	45,277	45,344	45,269	45,630	48,374	48,815	18.2	18.2	-3.4	7.0
18-24	27,355	26,904	26,592	26,140	24,281	25,231	10.4	9.3	-13.9	-3.5
25-34	43,513	43,861	44,02	43,925	40,962	37,149	17.5	13.8	16.7	-15.4
35-44	34,371	35,321	36,548	37,897	42,336	43,911	15.1	16.4	46.5	15.9
45-54	23,277	24,151	24,872	25,487	31,297	37,223	10.2	13.9	12.0	46.0
55-64	22,005	21,799	21,544	21,364	21,325	24,158	8.5	9.0	-1.8	13.1
65-74	17,646	17,873	18,129	18,373	18,930	18,243	7.3	6.8	17.4	-.7
75 and older	12,185	12,527	12,863	13,187	14,834	16,639	5.3	6.2	31.2	26.2
16 and over	187,955	189,810	191,451	192,989	201,018	210,134	77.1	78.3	-11.9	8.9
Male, total	118,939	120,054	121,159	122,243	127,123	131,191	100.0	100.0	10.2	7.3
Under 5	9,314	9,351	9,426	9,426	9,118	8,661	7.7	6.6	12.0	-8.1
5-17	23,190	23,228	23,190	23,377	24,787	25,027	19.1	19.1	-3.2	7.1
18-24	13,824	13,598	13,440	13,216	12,290	12,770	10.8	9.7	-13.8	-3.4
25-34	21,846	22,032	22,126	22,078	20,579	18,662	18.1	14.2	17.6	-15.5
35-44	16,980	17,466	18,094	18,785	21,104	21,945	15.4	16.7	47.7	16.8
45-54	11,314	11,750	12,104	12,406	15,292	18,296	10.1	13.9	12.8	47.5
55-64	10,356	10,273	10,170	10,103	10,149	11,557	8.3	8.8	-.8	14.4
65-74	7,809	7,923	8,052	8,171	8,476	8,242	6.7	6.3	20.3	.9
75 and over	4,305	4,432	4,559	4,682	5,326	6,032	3.8	4.6	30.9	28.9
16 and over	90,333	91,255	92,070	92,834	96,834	101,392	75.9	77.3	12.4	9.2
Female, total	124,888	125,995	127,092	128,167	133,016	137,078	100.0	100.0	9.7	7.0
Under 5	8,884	8,918	8,987	8,962	8,681	8,237	7.0	6.0	11.7	-8.3
5-17	22,087	22,115	22,079	22,253	23,587	23,788	17.4	17.4	-3.7	6.9
18-24	13,531	13,307	13,150	12,924	11,991	12,461	10.1	9.1	-14.0	-3.6
25-34	21,667	21,829	21,897	21,848	20,384	18,487	17.0	13.5	15.7	-15.4
35-44	17,391	17,854	18,455	19,112	21,233	21,966	14.9	16.0	45.4	14.9
45-54	11,962	12,401	12,768	13,081	16,005	18,927	10.2	13.8	11.3	44.7
55-64	11,648	11,527	11,375	11,260	11,176	12,601	8.8	9.2	-2.8	11.9
65-74	9,837	9,949	10,077	10,201	10,454	10,001	8.0	7.3	16.1	-2.0
75 and over	7,881	8,094	8,304	8,505	9,507	10,607	6.6	7.7	31.3	24.7
16 and over	97,623	98,554	99,381	100,155	104,184	108,742	78.1	79.3	11.8	8.6
White, total	206,190	207,696	209,178	210,616	216,820	221,514	100.0	100.0	7.7	5.2
Under 5	14,733	14,787	14,899	14,893	14,251	13,324	7.1	6.0	10.4	-10.5
5-17	36,533	36,469	36,317	36,537	38,493	38,589	17.3	17.4	-6.3	5.6
18-24	22,526	22,105	21,775	21,330	19,452	19,998	10.1	9.0	-16.7	-6.2
25-34	36,543	36,749	36,798	36,620	33,680	29,988	17.4	13.5	13.6	-18.1
35-44	29,530	130,251	31,223	32,306	35,635	36,574	15.3	16.5	44.1	13.2
45-54	20,073	20,836	21,450	21,950	26,879	31,618	10.4	14.3	9.8	44.0
55-64	19,377	19,138	18,852	18,637	18,327	20,667	8.8	9.3	-4.5	10.9
65-75	15,804	15,983	16,188	16,380	16,661	15,811	7.8	7.1	16.1	-3.5
75 and over	11,071	11,375	11,676	11,965	13,421	14,965	5.7	6.8	30.2	25.1
16 and over	161,122	163,390	163,468	164,468	169,668	175,579	78.1	79.3	9.6	6.9
Male	100,918	101,689	102,448	103,184	106,365	108,774	49.0	49.1	8.0	5.4
Female	105,272	106,007	107,730	107,432	110,468	112,739	51.0	50.9	7.4	4.9
Black, total	29,857	30,287	30,719	31,148	33,199	35,129	100.0	100.0	15.8	12.8
Under 5	2,744	2,769	2,806	2,814	2,790	2,748	9.0	7.8	13.7	-2.3
5-17	7,020	7,082	7,095	7,170	7,697	7,895	23.0	22.5	2.5	10.1
18-24	3,902	3,853	3,845	3,813	3,703	3,924	12.2	11.2	-5.4	2.9
25-34	5,460	5,562	5,639	5,685	5,534	5,264	18.3	15.0	31.2	-7.4
35-44	3,668	3,826	4,010	4,210	5,041	5,481	13.5	15.8	52.9	30.2
45-54	2,492	2,558	2,620	2,686	3,261	4,106	8.6	11.7	17.4	52.9
55-64	2,123	2,135	2,145	2,158	2,288	2,578	6.9	7.3	12.1	19.5
65-74	1,518	1,545	1,578	1,608	1,762	1,848	5.2	5.3	29.0	14.9
75 and over	931	958	981	1,005	1,122	1,283	3.2	3.7	33.1	27.7
16 and over	21,239	21,592	21,920	22,226	23,860	25,708	71.4	73.2	19.2	15.7
Male	14,203	14,414	14,625	14,835	15,840	16,787	47.6	47.8	16.2	14.2
Female	15,654	15,874	16,094	16,313	17,359	18,342	52.4	52.2	15.4	12.4

[1]Includes other races not shown separately.

Population in thousands

Source: U.S. Bureau of the Census

Figure 3
U.S. Population 1970-86



students. However, the number of graduates for the following decade will increase dramatically. Second, the number of teachers needed will also increase substantially through 1996, with a continuation of this need well into the 21st century. This causes at least two potential problems. The number of college students selecting teacher education as a major has fallen off drastically in the 1980's, making teacher recruitment very difficult. Additionally, the financial burdens caused by substantial increases in teacher salaries awarded in the late 1980s will impact in the 1990s when large increases in the numbers of teachers are experienced. The expected increases in educational expenditures for the mid- to late-1990s will be substantial and cause significant problems for school administrations and taxpayers throughout the nation.

Exacerbating the financial difficulties of the schools will be the curricular alterations necessitated by the changes in the characteristics of the student population. Table 11 indicates that the percentage of the total population out of the school is steadily increasing. Figure 3 graphically displays this change in the U.S. population by age group from 1970 through 1986. It is evident that the average age of the population of the U.S. is steadily increasing. For the 205 million Americans in 1970, the average age was 27.9 years. In 1986, the average age of the 242 million Americans was 31.8. It is possible that this increasingly aging population will demand educational services from the school districts. As the number of voters with no school children increases, the number of proposed school budget increases defeated will also probably rise.

Summary

It is important for educational administrators to possess a comprehensive knowledge of the changing demographics of the U.S. and their community. The numbers and characteristics of the children attending school have significant effects on all aspects of the school operation. In the early 1990's districts will have to continue to recruit large numbers of elementary teachers and build many new elementary schools. However, by the mid-1990s, the same students will move into the junior and senior high schools, creating a great need for secondary school facilities and professional staff. This growth and accompanying increase in cost will occur at a time when revenues for schools are controlled by an adult population more interested in such issues as medical care for the aging and retirement benefits. As a result, the 21st Century looms as a trying and exciting time for school business administrators as they attempt to cope with the challenge of more students and even more reluctant taxpayers.

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Chapter 4

Budgeting Trends: Implications for the Future

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For many local governments, including school districts, the budget is the central planning and management document. It is at the core of the process by which an agency deals with a critical responsibility -- the allocation of its fiscal resources. This process usually includes the use of numerous budgeting practices. The practices used in budgeting reflect the management philosophy of an organization and the nature of its governance system.

Current Budgeting Practices

To find out current budgeting practices, a mail questionnaire was sent to a sample of 750 local government budget practitioners from the active membership roster of the Government Finance Officers Association (GFOA). A total of 526 budget officers, finance officers, business managers, clerk-treasurers, and top managers of local governments returned the survey. Responses came from local government jurisdictions located throughout the United States including 14 percent from the Northeast region, 33 percent from the South, 28 percent from the North Central area, and 25 percent from the West. Sixty-three percent of the responses came from city officials, 16 percent from county governments, four percent from special districts, six percent from school systems, and 11 percent from other agencies.

Table 1 summarizes the profile of current local government budgeting practices according to the various phases of the budget process. Obviously, there are considerable differences among governmental agencies in terms of using the more sophisticated budgeting tools.

Table 1
Importance & Current Use of Budget Tools

Budget Preparation	
	% Rating Important[1]
Estimating & Forcasting Revenue & Expenditures	
Staff judgment	91%
Trend projection based on historical data	86%
Commercial computer packages	7%
Econometric equations	9%
Noneconometric modeling methods	16%
	% Using
Strategic Planning	42%
Budget Formats	
Line-item	58%
Performance	2%
Program	9%
Zero-base/Target-base	2%
Hybrids	29%
Output Measures	
Workload	84%
Efficiency	81%
Effectiveness	87%
Budget Consideration/Approval	
Citizen Input Mechanisms	% Using
Public hearing process	96%
Budget summaries & other explanatory material	58%
Advisory groups/committees (before final budget)	27%
Presentations before interested groups	26%
Special analysis for communications media	26%
Budget Monitoring	
Budget Implementation/Control	% Monitoring
Expenditures	98%
Revenues	93%
Compliance with regulations/guidelines	68%
Position control	55%
Degree to which goals/objectives are met	37%
Efficiency of operations	36%
Audit	% Using
Performance auditing	32%

[1]Important denotes a score of at least four on a five-point scale.

Budget Preparation

As the budgeting process begins, a major step is the development of estimates or forecasts of the organization's revenues and expenditures. Since the budget is a plan relating proposed expenditures to expected revenues and outputs, the reliability of this plan depends upon the accuracy of the forecasts, or estimates, of revenues and expenditures.

Local governments use several tools to help them prepare their revenue and expenditure estimates and forecasts. Among these are staff judgment, trend projections based on historical data, commercial computer forecasting packages, econometric equations (between economic variables), and noneconometric modeling methods, which examine major forces or pressures in the jurisdiction's environment.

Budget practitioners responding to the survey indicated on a five-point scale the importance of these various forecasting tools in helping them prepare their revenue and expenditure forecasts.

As Table 1 shows, most local governments think staff judgment and trend projection based on historical data are the most important tools in preparing revenue and expenditure forecasts. The three more sophisticated tools were not considered important by most agencies in forecasting revenues and expenditures. However, econometric equations were more likely to play an important role in forecasting in the largest jurisdictions. Noneconometric modeling methods, such as studying the demographics of a community, were more likely to be important to school districts as well as in jurisdictions in the West and South.

Strategic Planning

As a plan, the proposed budget should be based on and reflect decisions about long-range policy, management, and financial considerations of a school district or city. Some public as well as private organizations make such decisions as a result of their development of a strategic plan. In these organizations the strategic plan details the long-term, coordinated efforts for meeting agency goals based on explicit assumptions as well as on analysis of past, present, and expected future conditions. The budget document and process can be used to implement this plan.

Table 1 shows that the use of strategic planning has not been widespread among local governments. Less than half, approximately 42 percent, of the responding agencies had such a plan. Interestingly, the use of strategic planning in our sample was considerably higher among school districts and special districts than among general purpose local governments. Our data also suggest that strategic plans are directly related to the local government budgeting process. In fact, over half (57 percent) of the budget officials whose jurisdictions had a strategic plan indicated that the plan played an important role in their budget decision-making processes.

Budget Formats

Budget preparation involves the formulation of agency requests or recommendations based on forecasted revenues. In doing this, school districts and other agencies must decide how to present the requests,

how to structure and support the requests, what information to include, and how to arrange the data. This is accomplished through the jurisdiction's selection and use of a budget format and any output measures for inclusion in the budget document. Clearly, the budget format and output measures which a local government uses heavily influence its proposed budget document.

Local governments can choose from among many types of budget formats including line-item, performance, program, zero-base/target-base, and hybrid, which is a combination of any two or more of the above formats. Consequently, local governments can choose from among 15 alternatives -- four "pure" formats and 11 hybrids. As can be seen in Table 1, the line-item format appears to be predominant among local governments. Approximately 58 percent of the responding jurisdictions were using only the line-item format. Many other local governments used the line-item format in combination with another "pure" format. For instance, almost half of all the hybrid formats reported by the responding jurisdictions represented use of the line-item/program hybrid. A 1987 survey of 358 local government finance directors also suggests that the line-item is now by far the most commonly used format among local governments.

What budget format is used appears to vary somewhat with the jurisdiction's location and size. Among the reporting jurisdictions, use of the line-item format is considerably greater in the Northeast and significantly lower in the West than in the other two regions. Program format use follows the opposite regional pattern. Dependence on the line-item format declines markedly as local government size increases.

Measuring Output

The effort to present budget requests and recommendations clearly and to facilitate decisions about them can involve the use of output measures in the proposed budget document. These measures are particularly useful for focusing attention on particular kinds of information. The types of output measures and the kinds of information they present may include:

- Workload measures: Measure of the amount of work done;
- Efficiency measures: Usually relating the amount or cost of input per unit of output; and
- Effectiveness measures: Measure of the extent to which the goals or objectives of the service are being met.

According to the survey, there now appears to be widespread use of all three types of output measures among local governments. Over 80 percent of all the reporting jurisdictions used each measure in their budget processes. There was no significant difference in this use due to the type of jurisdiction (e.g., city vs. school district), its size, or its regional location. Where used, these measures are often considered to be influential on decisions allocating fiscal resources. Both workload and effectiveness measures were reported to be influential in over half of the jurisdictions that used them. Efficiency measures were viewed as influential in over 35 percent of the local governments using them.

Citizens Consideration/Approval

The local government budgeting process is a potential vehicle for promoting the democratic ideal of active, meaningful citizen involvement in government. Realization of this opportunity is most likely during the preparation and consideration of the proposed budget. Citizen participation at this time can have a significant impact on the local agency's approved budget and subsequent endeavors. (O'Toole and Marshall, 1987)

A number of mechanisms are available for obtaining citizen input on the proposed budget. They include a public hearings process, budget summaries and other explanatory material, advisory groups/committees (prior to budget finalization), presentation before interested groups, and special analyses for communications media.

Table 1 displays the survey results regarding use of citizen input mechanisms. The results show that many local governments use more than one citizen input mechanism prior to budget approval. Among the reporting local governments, a public hearing process is almost universal. Budget summaries also are widely used. However, considerably less use is made of the other three citizen input mechanisms.

Use of the citizen input mechanisms does not vary significantly in different regions of the United States. However, it does vary with the type of jurisdiction (e.g., city vs. school district) and its size. In comparison with other types of jurisdictions:

- Counties were more likely to use both budget summaries and special analyses;
- Special districts were less inclined to use budget summaries;
- School districts were more apt to use advisory groups; and
- School districts and counties were more likely to use presentations.

Except for the public hearings process, use of citizen input mechanisms among the reporting jurisdictions directly relates to jurisdictional size. The larger the jurisdiction, the more likely it was to use four mechanisms.

Budget Implementation and Control

Once the local government's top decision-makers have approved and adopted the budget, the focus shifts to implementation and control. This focus includes periodically assessing the budget's credibility in terms of the forecasted revenues and expenditures, attempting to gain compliance with the decisions it contains, and identifying and appropriately responding to areas where the budget no longer "fits" reality. Information the local government needs to carry out these activities may lead it to monitor expenditures, revenues, compliance with regulations and guidelines, position control, the degree to which the goals or objectives of services are being met, and the efficiency of operations.

In Table 1, the survey results on monitoring show that almost all local governments monitor expenditures and revenues, most track compliance with regulations and guidelines, and over half exercise position control. Over a third of these jurisdictions also check the efficiency and effectiveness of operations.

The survey results also revealed some associations between the use of a monitoring function and the type of jurisdiction, its size, and regional location. These relationships are:

- Jurisdictions in the South were more inclined to monitor position control;
- The larger the local government, the more likely it was to exercise position control;
- The largest jurisdictions were more inclined to check efficiency and effectiveness; and
- Counties were more apt to monitor effectiveness, while school districts were less likely to do so.

Also examined was the frequency with which expenditures were monitored. The findings showed that monthly monitoring was the typical of local governments. Most reporting jurisdictions (81 percent) monitored expenditures monthly, while relatively few (8 percent) used a quarterly tracking system. The frequency of monitoring expenditures among these local governments did not vary significantly throughout the regions of this country. However, the type of jurisdiction and size of the local agency did make a difference. Compared to their counterparts, county governments and the largest jurisdictions were more likely to practice quarterly rather than monthly monitoring of expenditures.

Audit

The final phase of the budget cycle begins with the end of the fiscal year. It centers on an audit, or final check, of what the organization did during that year. In the past, the audit typically focused solely on the appropriateness of the jurisdiction's financial activities. However, it now may include a performance audit, which assesses the efficiency and effectiveness of the agency's programs in that year.

The information on use of performance auditing contained in Table 1suggests that a moderate number of local governments now use this tool. Approximately one-third of the responding budget officials indicated that their jurisdictions were currently conducting performance audits. This usage did not vary significantly among regions. However, it was directly related to the local government's size. The larger the jurisdiction, the more likely it was to use performance auditing. Also, counties were considerably more apt to use this tool than other types of jurisdictions.

According to the survey results, performance auditing in local governments is often an in-house function. Among the reporting jurisdictions using this tool, the organizational units that were most often responsible for conducting performance audits were the budget office (33 percent), the auditor's office (19 percent), and the chief executive's office (13 percent). Finally, the present relationship between performance auditing and budgeting in many local governments may not be particularly strong. Only about one-third of the budget officials who said they were using this tool thought that it played an important role in their jurisdictions' budget decision-making processes.

Trends in Budgeting Practices

The survey also collected additional information on revenue and expenditure estimating and forecasting methods, strategic planning, budget formats, and performance audits. This information was obtained to identify any emerging trends and their use or importance in local government budgeting. For each of the above tools except budget formats, budget officials were asked to indicate whether its role or importance in their jurisdictions' budgeting processes would increase, remain the same, or decrease during the next five years. In the case of the budget formats, budget officers were asked to identify which type their local governments used five years ago as well as now, and which kind they would likely have five years into the future.

Budget Tools

Table 2 contains the survey findings for all of the selected tools, except budget formats. These results suggest that sometime in the future, more sophisticated budgeting tools will play a greater role in the budgeting processes of many local governments. As Table 2 shows, many business officials projected that strategic planning, performance auditing, and, to a lesser extent, commercial computer packages would be more important in their jurisdictions' future budget decision making. Econometric equations and noneconometric modeling methods also appear to have a brighter future in local government budgeting.

Budget Format

The survey results on budget format over a 10-year span also reflected a trend in local government budgeting toward greater reliance on more sophisticated tools. Table 3 compares past, present, and projected future budget formats used by local governmental agencies. Among local

Table 2
Projected Future Importance of Selected Budget Tools

Estimating & Forecasting Revenue & Expenditure[1]	% Projecting Increase	% Projecting Decrease
Staff judgment	14%	8%
Trend projection based on historical data	22%	10%
Commercial computer packages	48%	13%
Econometric equations	26%	12%
Noneconometric modeling methods	27%	12%
Strategic Planning[2]	67%	2%
Performance Auditing[2]	64%	4%

[1]Includes all responding jurisdictions.
[2]Includes only responding jurisdictions that use this tool.

governments, there is a trend away from exclusive use of the line-item budget format and toward the use of program and performance budget formats and hybrids involving them. The line-item is projected to remain the most commonly used budget format in the future. However, the business officials indicated that the percent of local governments using it will drop during this 10-year span from 75 percent to 35 percent. Increased use of the program and performance budget formats and hybrids involving them account for virtually all of the 40 percent change in budget format usage the respondents project for this 10-year period. The line-item/program budget format remains the most common combination, comprising approximately one-half of all the hybrid budget

Table 3
Profile of Format Use

Format	% Using 5 Years Ago	% Using Now	% Projecting Use in 5 Years[2]
Line-item	75%	58%	35%
Performance	2%	2%	12%
Program	8%	9%	18%
Zero-base/Target-base	2%	2%	3%
Hybrids[1]	13%	29%	32%

[1]Includes all hybrid combinations.
[2]Indicates budget officials' projections of formats their jurisdictions will use five years from now.

formats used in the past, present, and future.

Bugeting Roles

The nature of the budgeting process is not simply a function of the various practices used in it. The roles key actors play in this process influence it and its outcomes.

This survey of local government business officials also examined the roles played by the budget office, outside consultants, the governing body, and the citizens in the budgeting process.

Budget Office

Sixty-eight percent of the reporting local governments had a budget office. Regional location did not significantly affect whether an agency had a budget office. However, use of a budget office was considerably more prevalent among counties, school districts, and larger jurisdictions.

Local governments that use a budget office typically have it play a major role in preparing the proposed budget and implementing the

approved one. As Table 4 shows, in at least 90 percent of the governmental agencies that had a budget office, the unit was responsible for formulating revenue estimates, analyzing departments' budget requests, packaging the proposed budget for the governing body's consideration, making budget allocation recommendations, and monitoring departments' expenditures. However, the budget office's responsibility in local

Table 4
Responsibilities of Budget Offices

Budget Responsibility	% Budget Offices
Formulating revenue estimates	91%
Analyzing department's budget requests	94%
Packaging proposed budget for presentation	98%
Making budget allocation recommendations	90%
Monitoring department's expenditures	94%
Conducting performance evaluations	36%

government often does not including performance evaluation.

The responsibilities of the budget office do not vary significantly due to the type of agency or its regional location. However, the likelihood that the budget office analyzes departments' requests and makes budget allocation recommendations increases with the size of the organization.

The roles of budget actors are also reflected in their interactions with others. According to our survey results, the interaction between the budget office and the governing body in many local governments has recently changed in one important respect. Over 54 percent of the business officials from local governments with a budget office indicated that the weight the governing body gives to the office's budget recommendations has increased during the past five years.

Outside Consultants

Some public agencies have outside consultants help them with a variety of tasks. The survey examined the extent to which outside consultants currently were helping the local governments prepare their revenue and expenditure estimates. We found that in most local governments this task was performed solely by agency officials. Eighty-four percent of the business officials said outside consultants were not involved in budgeting, while an additional 15 percent indicated that they played only a minor role in it. The type of jurisdiction, its size, and its regional location do not appear to significantly affect these results.

Governing Body

The final decision about many key aspects of the local government budgeting process, including the adopted budget, typically rests with the governing body. The survey results indicate that governing bodies of

local governments usually consist of elected officials whose role in the budget process is primarily legislative. Ninety-seven percent of the business officials reported that their governing body was elected. A chief executive officer performed the executive function in 89 percent of the responding agencies. In only nine percent of the cases did the governing body perform both the executive and legislative functions.

Approximately 25 percent of the business officials said that the role of the governing body in their budgeting processes had changed during the past five years. This change was most prevalent among the largest agencies. In most cases, the governing body's role change was characterized as either becoming more interested or involved in the budgeting process or placing more emphasis on policy issues, priorities, and programs and their objectives.

Citizens

The survey also included information on local government use of citizen input in budget decision making. Local business officials indicated their agency's success at integrating citizen input received on the budget into budget decision-making processes. According to the results, citizen input was often not well integrated into local government budget decision making. Only 27 percent of the business officers felt that their local governmental units were successful in this area. There were no significant differences in these results due to jurisdictional type, size, and regional location.

Future Roles

As part of the survey, we asked budget officials to predict future changes in the roles of budget offices, governing bodies, and citizens. Table 5 summarizes the results.

Budget Office Trends

In many local governments, the governing body may soon be giving more weight to the budget office's budget allocation recommendations. Almost half of the budget officials in the survey indicated that this was a future trend. This change would mean expanded influence for these budget offices in the budgeting process.

Governing Body Trends

Few role changes are anticipated for local government governing bodies. As Table 5 indicates, only 22 percent of business officials believed their governing bodies' roles in the budgeting process would change during the next five years. Where a future role change is expected, business officials think that the governing body will either show greater interest or involvement in the budgeting process or give more emphasis to policy issues, priorities, and programs and their objectives.

Citizen Involvement Trends

Future budgeting processes in many local governments may include

Table 5
Predicted Future Roles

	% Jurisdictions
Budget Office	
Predict an increase during the next five years in the weight the governing body gives to the budget office's budget allocation recommendations.	48%[1]
Predict a decrease during the next five years in the weight the governing body gives to the budget office's budget allocation recommendations.	4%[1]
Governing Body	
Predict a role change during the next five years for the governing body.	22%
Predict no role change during the next five years for the governing body.	78%
Citizens	
Predict an increase during the next five years in the role of citizen involvement in the jurisdiction's budget decision-making process.	43%
Predict a decrease during the next five years in the role of citizen involvement in the jurisdiction's budget decision-making process.	2%

[1]Based only on those reporting jurisdictions that now have a budget office.

an increased role for citizen involvement. According to the results, 43 percent of local business officials think this will happen in their governmental unit.

Budgeting in the Future

From this survey, it is apparent that the budgeting process is changing. It is also apparent that school business officials who wish to be successful in the 21st century will have to change as well. The areas where they will have to adapt most include use of modern budget preparation methods, monitoring productivity related to cost, and opening up

the budgeting process for more input from citizens and school boards.

Traditionally, school systems have relied on the experience of the district staff along with past history to develop, implement, and monitor the budget. However, school fiscal management has become such a dynamic, complex endeavor that methods that have worked in the past may well lead to chaos in the future. Tax bases, community demographics, and community expectations of schools are changing at a blinding rate. Only through use of relatively sophisticated budgeting tools will the school business manager survive. Instead of relying on the past, school business officials will have to predict the future. This will necessitate use of computer simulation models and econometric equations to assess possible alternative input/output scenarios. School business managers will also have to be able to conduct continuous in-depth analysis of the communities they serve. Said differently, a school business official of the 21st century who relies on past experience alone to develop revenue projections and anticipate expenditures is doomed to failure.

In the future, the school business official will be required to more fully integrate the budget process with mission, goals, and priorities of the school district. No longer will the "rollover" budget be possible. Business managers will be called upon to work with other educators and the community to develop strategic plans detailing what the school district plans to do, when, and how success will be measured. As part of this responsibility to budget funds to goals and to produce reports showing this, the business manager will have to move to more extensive use of program-based budgeting and/or zero-based budgeting.

The school business manager in 2001 will by necessity have to open the budgeting process to more individuals and groups. The public will increasingly demand to be allowed significant input into the budgeting process and, at the same time, will insist on being provided sufficient information to know that public funds are being spent judiciously. In the near future, most, if not all, school systems will have citizen committees who assist the district in detailed development of the budget and subsequent monitoring. Accompanying greater citizen input will be increased school board oversight. Individually and collectively, school board members will become more and more sophisticated regarding the budget and demand careful and complete explanations regarding budget matters. Gone will be the days when the school business manager could say, "Its that way because I said it should be and I'm the expert who knows."

Finally, the school business manager of the 21st century can expect to be much more of a generalist than ever before when it comes to budgeting. No longer will it suffice for a school business official to be a "numbers cruncher." Instead, school boards will begin hiring persons who have a solid grounding in financial management but who can also relate extremely well to individuals and groups. Business managers of tomorrow will need a firm understanding of human behavior and group dynamics in a world where citizens will demand input. School boards will also expect business managers to be sophisticated planners who are knowledgeable of strategic planning processes, and who have a demonstrated expertise in developing simulations, computer and otherwise, to

test alternative input/output strategies for dealing with instructional and support issues. And, school business officials will be expected to be capable of conducting meaningful analysis of the changing demographic trends of the community. Such demographic analysis will be much more in-depth than many of today's simplistic calculations of numbers of and types of people. School business officials will need to be able to assess the beliefs and values of their communities and be able to predict changes in these.

In general, the basic budgeting tools of the future will be much more sophisticated than of today, participation by all affected by the budget will be greater, and the budget will be much more closely aligned with specific goals of the school system. Because of these predicted changes, the school business official will need to be an expert in financial matters while exhibiting a high degree of ability to plan and to work with people.

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Chapter 5

Technological Trends: An Expanding Business Official Role

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School business managers throughout the United States are rapidly becoming the chief information managers for their school districts. As such, they will be called upon more and more to make decisions and provide information on a variety of topics outside their usual arena. By the year 2000, this new and expanding function will require that school business professionals be knowledgeable in a variety of technological areas. Familiarity with the rapidly expanding developments in information processing, office automation, and telecommunications will be required for the successful operation of the entire school district. This will include the integration of classroom instructional management systems with the administrative applications historically associated with school building and central office operation.

School Automation Analysis

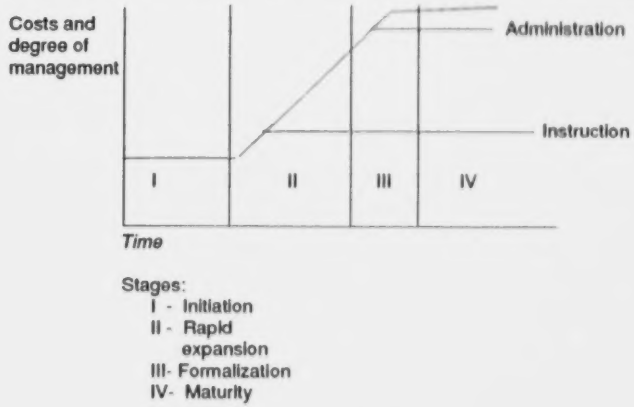
The use of systems analysis has proven effective when dealing with selecting computer systems for business and industry, but it has not yet been adequately used to satisfy the complex requirements of modern school systems. Data processing capabilities for schools exist in several forms, including attendance monitoring, budgeting, scheduling, computer-aided instruction, and tools to analyze students' learning and career aptitudes. However, a comprehensive methodology for integrating computers throughout the school environment is not commonly employed. Although this is not unique to school systems, the constraints of the school budget and the diverse and conflicting requirements of a school system mandate efficiency and effectiveness in computer system

selection. Fully understanding and stating the problem of what happens when a systematic approach is not used to select a computer system is the first step in developing a solution.

The typical school district will often "automate" the administrative operations and the instructional functions without a plan for integrating these two separate and usually very different systems. When microcomputers are used to implement automation, at least two manufacturers or system types with different software and growth commitments are usually considered: the IBM-compatible family for administration and information management, and the Apple family for instruction. As a result the person most directly responsible for the education of students, the teacher, frequently does not have easy, convenient access to student information that may be important to effectively teaching students with a wide range of capabilities and motivation.

The growth and development of computer acceptance and implementation in organizations commonly follows a set pattern. A growth curve can be used to represent the extent of user interaction as computers are introduced and proliferate over time. In Figure 1, the shape of the curve indicates the four stages of growth: initiation, expansion, formalization, and maturity.

Figure 1
Stages in Computer Growth in an Organization



In the initiation stage, there is the perception of a need for automation and one or more computers are introduced. Generally this occurs with little planning and usually serves the needs of one person, a single function, or an individual department. If a data processing department exists in the organization, it may not be involved or consulted in the

acquisition of microcomputers at this stage. There is usually no consideration given to maintenance planning, compatibility with other systems, or extensibility of future functions, resulting in high expenditures, incompatible equipment and software, and inadequate support for each system.

Once the computer is in place and individuals have become comfortable with the equipment, a period of rapid expansion takes place. With little formal planning, this stage usually involves the purchase of more computers and more software, yet little consideration is given to possible integration of the parts into a system-wide solution of problems. This stage is characterized by rapidly increasing hardware and software expenditures and the increasing realization that the proliferation is not being controlled. Frustration is common in this stage as users are faced with too many software packages, each with a different set of commands, too little training on the computers, and unrealistic expectations of what the computer should be able to do. Management is typically plagued with increasing maintenance costs for equipment from multiple vendors. Heterogeneous equipment purchases result in systems that may be impossible to integrate, and as additional software must be purchased, compatibility becomes an issue. Unplanned, often spurious software purchases result in higher costs and lowered equipment use.

The formalization stage is reached when the need to integrate functions is realized. At this point, data processing and systems analysts work together to integrate hardware and software, to standardize applications, and to set policies for computer purchasing and use. This stage is usually a stressful period for an organization, since service is disrupted while applications are integrated and a moratorium on purchases of new equipment is enforced while standards and policies are set.

Once the organization has successfully integrated its computers and functions, a period of maturity is initiated with planned growth and mature computer use in an environment with enforced standards and policies. Unfortunately, tremendous energy, resources, and good will have been used up by this time.

A Systems Approach

A primary goal of school automation analysis is to avoid, or at least control, the historical rapid expansion phase and to use a systems approach to incorporating computers within the educational environment. In an ideal world of tomorrow, data processing or systems analysts will be consulted, beginning at the first computer purchase. In a real world, the analyst's job may be either planning and design or recovery and redesign of systems, depending on the stage of growth that has been reached before planning is started. In the educational setting, the administrative and instructional functions are maturing independently and at different rates. In many cases, computer support for administration has reached a point of formalization, but the instructional and informational requirements of the classroom teacher are still in the initial or rapid expansion stage and may be deadlocked, mired in confu-

sion. An attempt must be made to integrate all the requirements for educational automation.

The integration of a school's computers can be described as a process which identifies functions that were previously discrete, such as administration and instructional management that can or should share data. When such areas or functions are found, new systems can be designed to facilitate communication which will support the movement and the use of data throughout the school district. For example, if a teacher is to be effective in the classroom, relevant data on students must be available in the classroom setting. There is a basic need for student records and attendance data in both administration and instruction. For example, if CAI software provides progress reports, the computers on which CAI resides and the computers on which administrative records exist must communicate with each other. Computer networks can be designed to facilitate that communication, but successful development in the future will require careful planning and analysis.

Future Needs

A conceptual model of how schools function will be needed to assist school business officials of the future to plan for computers to meet the combined administrative and instructional requirements for automation. The three main techniques used to develop models of how schools function are the communications approach, the information and resource management approach, and the functional analysis approach. In addition, a sociotechnical approach, increasingly used in office automation, is becoming widely accepted.

The communications approach views the school as a system of communication and treats integration and automation as a communication problem between sections of the system. The objective using this approach is to improve communications between persons using the system and to facilitate better communications between computers at various locations throughout the system. In the communications approach, the principal focus will be on establishing communications paths that are efficient and effective. An attempt is made to optimize these communication paths to facilitate the use of information in schools.

The information and resource management approach focuses on data storage, effective resource sharing, effective data presentation, and efficient data transfer between users in the school. The emphasis of the resulting design will be on storage, flow, and retrieval of useful information by persons involved in schooling.

The functional approach to system design identifies and analyzes the functions performed in schools in an effort to increase efficiency in the performance of each function. While data are considered in this approach, the efficiency of application programs is stressed over effective presentation of information.

The sociotechnical approach views a school as a social system within which jobs are performed. This approach considers the quality of work life (QWL) as a primary factor for the success or failure of school

changes, in particular for the introduction of automation to the workplace. The sociotechnical approach combines features of the three traditional approaches.

A Futuristic Model

A school, with its rich and complex information and functional requirements, cannot be analyzed using only one approach. The different focuses of the participants in a school setting indicate the need to involve users in the development of a complete system. For the 21st century, a model is needed which will reflect requirements of both administrative and instructional users and their functions within a school system.

Figure 2 on the following page offers a school model for defining and designing school computer systems based on the model presented in the book, *Office Automation: A User-Driven Method*, and illustrates decision making related to computerizing the frequent monitoring and reporting of student progress. The stakeholders, those persons with an interest in the system, are the primary drivers of the analysis and design process. In the educational community this includes administrators, teachers, students, and parents. Each stakeholder or representative would have his/her own set of goals and objectives and each would be a part of the overall mission of the school.

In the top section of the model, the separate goals for each stakeholder and the appropriate "key result areas" by which the achievement of the goals is measured are identified. The model adds a "front end" to the traditional systems analysis and design life-cycle and provides a set of measurable objectives for the system. An example of a single stakeholder's (teacher's) concern for an instructionally effective school might include a goal of frequent monitoring and reporting of student progress. The key result areas would be:

- Teachers will have access to student progress on a daily basis.
- Teachers will have problem diagnosis and remedial suggestions available upon request.
- Parents will be informed on a frequent basis if problems exist.

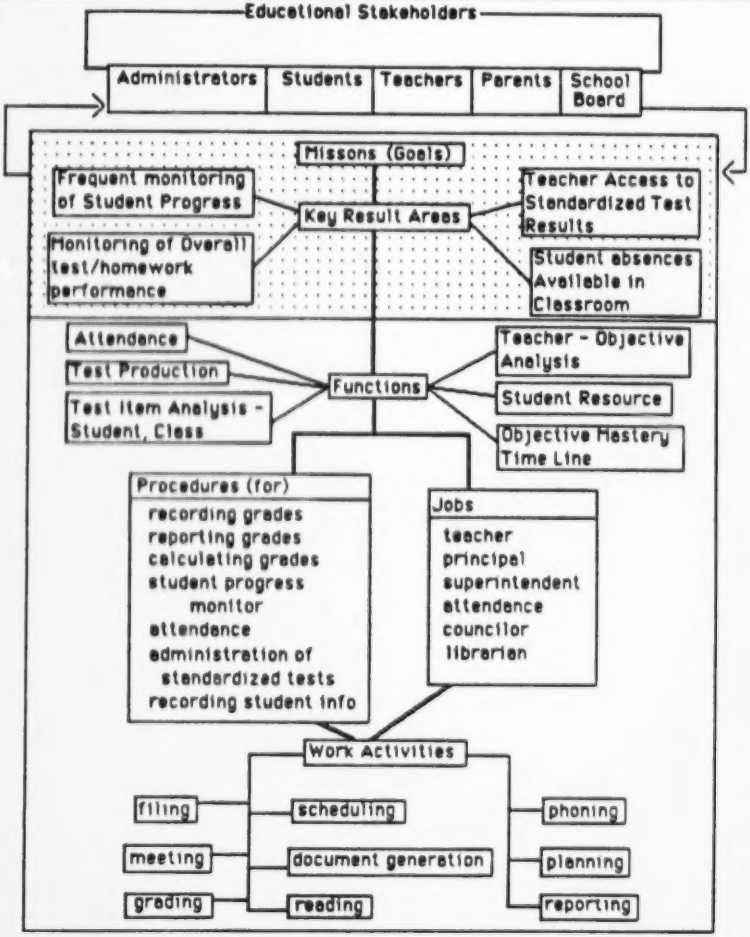
The lower section of the model identifies functions and their processes, procedures, and jobs. The functions analyzed will be those corresponding to the key result areas identified by the educational stakeholders.

School business officials, as chief information managers in their school districts, will find the use of a model such as ours a necessity in the future. Without a "model" for planning, business officials may find that they have left out key "stakeholders," forgotten to include important data in making decisions, and/or provided a computer system that solves one problem while creating others.

Computers in 2001

In addition to carefully studying the future computer system needs of a school, school business managers will have to make decisions concerning the environment within which the computer system will operate.

Figure 2
Tapscott's User-Driven Design



Historically, administrative uses of computers in education have followed the practices of business and industry. Originally, information management systems were developed as classical centralized computer operations. As such, data processing in schools, as well as in business, was characterized by having access, control, processing, and data concentrated at one location under the control of centralized management. In those school districts large enough to require multiple users working on the central system, access to a centralized system was gained by either

remote job entry devices or real time terminals. Remote entry users had their jobs processed in a batch mode, while users of remote terminals relied on time-sharing arrangements to process their applications.

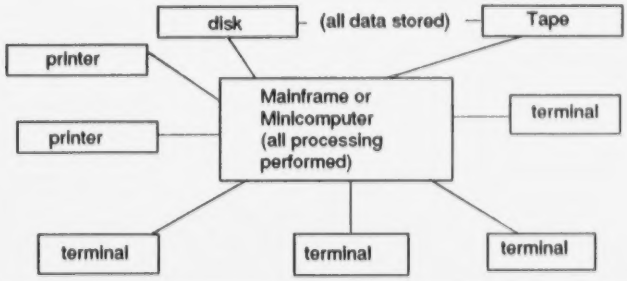
As a result of the development of improved computer networks and more powerful, smaller machines, a centralized system evolved into a decentralized system where processing was accomplished at individual sites but storage and data control were still maintained at the central site. As user involvement and technical understanding increased, so did the user demands for access to their own data. This created a challenge for the central storage philosophy of a centralized system. Many centralized systems became hybrid environments which supported a variety of machines and software and allowed some sites to store and process data on their own, while others continued with traditional time-share and batch procedures resulting in a distributed system. Each configuration, centralized and distributed, has a unique set of advantages and disadvantages.

A Centralized Approach

Most school districts today, which use information technology for school business management, follow a centralized arrangement as illustrated in Figure 3. A central computer system stores and processes all data with access allowed through terminals, possibly placed at remote sites. Whether an operation involves a large, mainframe operation or a mini-computer, proponents commonly maintain that economies of scale in both hardware, software, and personnel can be achieved by concentrating expensive resources in a central location. All processing and storage can be accomplished at one geographic location, with interactive or batch terminals at other geographic locations. In addition, control, security, data standards, and data integrity are easier to maintain in a centralized computing system. Because the information is in a centralized center, it is readily available to the superintendent and assistants.

However, this quick response to top management is generally obtained at the expense of providing timely data to non-local users. Budget up-

Figure 3
Centralized Environment



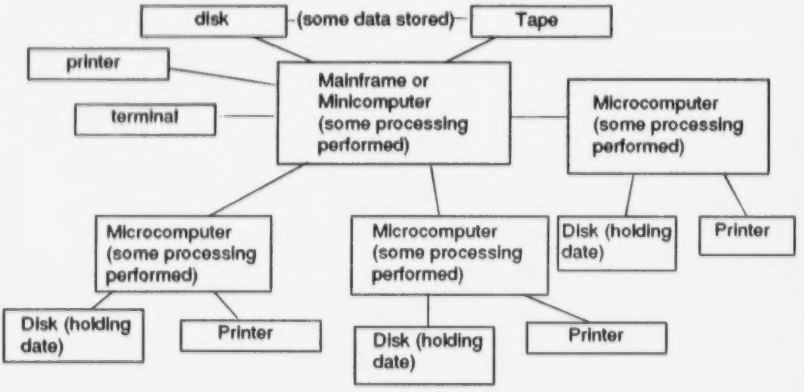
dates, attendance figures, and student performance records may not be available to building personnel at all times.

A centralized computer center represents a large investment in people, time, hardware, and application software. Improvements in hardware technology have lowered the cost of hardware, but the costs for the technical talent required to maintain hardware, facilities, and application programs have increased. Many computing centers are still using emulators to allow old, large, and expensive application programs to run on the newer machines because the programs were too expensive or complex to completely rewrite. As more tasks are automated, they become linked together into complex, interdependent systems. Eventually the need for software reorganization becomes acute. As the system grows, and one user's data become the input to another program, modifications to the code in one application can adversely affect the operation of another. At the extreme, such a situation can bring an entire operation to a halt. In addition, expansion of a centralized computer system is finite. Additional requirements may not be possible if the limits to the system have been reached. In a centralized environment, failure of the computer results in failure of all processing capabilities.

A Distributed System

A distributed system, shown in Figure 4, has computers in different locations which communicate and process data cooperatively. This allows school personnel autonomy within certain pre-established constraints. The underlying philosophy of distributed systems, that data are a district entity and not departmental or an individual resource, keeps the district level data available to central office personnel while maintaining a locus of control at the building level. A distributed system

Figure 4
Distributed Environment



has no finite limit on expansion; the addition of new technologies are less expensive and easier to facilitate.

In business and industry, improved efficiency and effectiveness have been the primary demands driving the development of new distributed database systems. Efficiency is gained by the synergistic effect of combining database management systems with data communications networks. Such systems of computers promise increased system reliability and resilience through replicated software applications, hardware environments, telecommunication modalities, and data.

On the other hand, when data and processing are distributed, control issues become crucial to aspects of data integrity and accuracy of reports. Standards must be set and enforced to achieve integration of all parts of the system. Security of data is more difficult to enforce on micro-computers and data transmitted over telecommunication channels must be verified as correct.

As chief information managers, school business officials must be aware of the forces and issues involved in the evolution of distributed systems. Four issues are at the center of the decision to implement a distributed computer environment:

- Access to data,
- Processing of data,
- Distributing control, and
- Distributing the data itself.

Access to Data -- A conflict between data processing managers and users may occur when a decision to decentralize operations is made. Data processing managers in large district operations are often uncomfortable with the idea of offering other people or users free and open access to "their" data. Even in small district operations, users often perceive autonomous control by the central office as a restraint that prevents them from exploiting more advanced applications of the technology and achieving a desired level of internal productivity.

Effective users want the opportunity to experiment with computing their own data, but they must have access to the appropriate data. Classroom teachers are beginning to demand access to student data to improve instruction. Instructional Information Systems are being designed to make data located in a variety of locations available to those most responsible for the delivery of instruction to students -- the teachers. Such systems would allow teachers to track student performance, evaluate student and class performance, and prescribe alternative activities which may be used to assist the individual student. Information contained within such a system would include unit test results, homework, class participation, final examinations, social, home, and community information, standardized test results, and much more. In order to implement these distributed systems, the conflict between data processing and end users must be resolved. In addition, safeguards must be built into the system to protect unauthorized access to confidential records.

Processing of Data -- If processing of data is distributed among computers in the system, control of those processes which modify data must

be enforced to avoid lost or inaccurate data. In addition, the users who will have the responsibility of running the processes must be trained in the correct use of the computer system and application programs. This will involve a commitment on the part of the school board, administration, managers, and all users to successfully achieve wide-spread training.

Distributing Control -- Control of individual components of the system will be the duty of local users responsible for the data and processing. Management at each local computer site would control data entry and operations, interaction with the system, program development, logistics, operating methods, and future development. This does not imply that the district data processing office will lose all control over the system as a whole; rather, under the direction of the central office, control is shared among responsible users of the system. The central office computer will not cease to exist, instead it will become the repository of archival data, summary data, and system-wide data and will be responsible for processing reports required for system-wide operation. Data must eventually flow upwards within an organization to give the central office decision makers the best information available.

Distributing Data -- If the data are to be distributed, decisions will have to be made regarding distribution, centralization, and replication. In business and in education, data should reside at the level most capable of using it to make decisions. In the distributed environment, all data should be relegated to the appropriate local sites in such a way that the local database management system appears transparent to the system. This will insure that global queries, transactions, and updates written in the common user language with standard protocols can migrate to the different local data base management system in order to execute their tasks without encountering problems.

In general, data can be distributed based upon the way they are used. Data that are used for retrieval by all sites may be replicated at each site to reduce communication costs. Data that are frequently updated may be centralized, or, if most of the references for certain parts of the database are made at a certain site, then that part of the database could be stored at that particular location.

One likely mixture could be based on the horizontal and vertical partitioning of data. A vertical partition is the separation of different but interdependent subsystems. Payroll and budget and elementary and high school grade reporting would be examples. Horizontal partitioning is the separation of compatible interchangeable subsystems. A horizontal partitioning would result when an application program and data are distributed to all sites that perform that function; for example, processing of attendance by all school buildings. Partitioning would result in an application program and data being distributed only to the node where they are used.

Flexibility of distributed System -- School operation is a dynamic process. As in business and industry, if the school information system is not capable of reflecting this dynamic environment, it will be doomed to failure. The modular nature of the distributed system accommodates

future growth with relative ease by providing easier, lower cost upgrades than would be possible with a centralized system. Old units at one site can be taken out, replaced, or eliminated without affecting other users at other locations. If the computer system falls below acceptable standards because the work load has increased, incremental growth can be achieved by adding more processors. Since all of the programs, data, and processors would be available to anyone on the network, without regard to the physical location of the resource or user, load sharing as well as resource sharing would be possible, and temporary load imbalances could be resolved by using another processor in the distributed system.

Distributed System Questions -- In addition to the political and technical considerations of distribution or redistribution, various economic implications must be considered. School district decision makers will have to be convinced of the potential economic and instructional benefit before any database is distributed. While it is true that the costs of mainframes, terminals, and small computers are coming down, other costs must be considered as well. Will more personnel be required if the data base is distributed? What are the communication costs, software costs, processing costs, and additional hardware costs? Can the district afford the expenditure? What are the options? Is it really necessary to distribute the data base? If so, does the benefit justify the expenditure and how should it be implemented?

The school business manager of the 21st century will have to answer these questions. The answers will come only after careful and continuous analysis of user needs, current status of equipment and software, and knowledge of new technique systems.

Planning for Tomorrow

Many school systems have a substantial capital investment in existing computer equipment. To protect this investment, someone must initiate a systems analysis approach as to the efficiency and effectiveness of present equipment and to planning for future purchases. There must be a commitment on the part of the system stakeholders to formalize the use of the computer and to integrate previously independent operations if school districts are to provide efficient and effective distributed use of the computer in the school setting. In all likelihood, school business officials will be asked to assume the role of chief information manager. Therefore, they must become familiar with the distributed model to help with the requirements, specification, and design of the system.

The key to a successfully distributed environment in the year 2001 will be a systematic design approach that will preserve the integrity of the data despite the configuration of the system. Application programs on one machine will have to be allowed to be run remotely from another machine in the network. Files will need to be transferred from one site to another with databases at the different locations collectively representing school district data.

There is no doubt that distributed computer systems will become more popular in the early 1990's because of their efficient and effective use of

resources and their ability to logically connect geographically separate attendance centers. The question that needs to be answered is how do we get people to welcome change to a new technology? The effective use of the distributed computer environment within the school setting will require a significant change of behaviors of individuals within an organization. If the ultimate goal of the successfully distributed computer environment is the full utilization of the data available to all users, then the school district information policy must reflect an attitude of trust and cooperation among teachers, administrators, and parents. School business officials will play a key role in establishing, implementing, and monitoring such a policy.

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Chapter 6

Revenue Trends: Federal, State, and Local

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The social, political, and economic forces that affect other organizations and institutions also affect public schools. As long as change is slow and predictable, the resulting impact is manageable. Unfortunately, the environment is changing much faster than ever before, becoming more complex and interconnected. This complexity makes financial planning more complicated, requiring frequent budgetary revisions.

Public school financial administrators realize that revenues are volatile and difficult to forecast accurately. As a result, revenue forecasting models have become more sophisticated. Revenue analysis requires detailed information on the economic base and revenue base of both the community and the state. Berne and Schramm, 1986; Mikesall, 1986) Variations in demand for educational services and variations in costs among school districts because of organizational factors and regional labor market and price differences make matching revenues and expenditures more difficult. The supply of resources is affected by demand for educational services and the willingness of the public to support public educational institutions.

Trying to predict the future with any degree of precision is pure folly; however, an analysis of past and current public school revenue trends combined with an understanding how revenue decisions likely will be made offers the best preview of the future of public school revenues.

Historical Trends in Public School Revenues

Revenues from all sources for public elementary and secondary schools in the United States rose from $2 billion in 1929-30 to $149

billion in 1985-86. The greatest percentage increases in total revenues occurred in the 1950s and 1960s when the public schools were undergoing tremendous expansion to accommodate the increase in the number of students brought on by the post-Second World War baby boom. The relative importance of funding sources also changed over this period. In 1929-30, public elementary and secondary schools were predominantly locally funded, with 83 percent of all revenues coming from local and intermediate sources. By 1969-70, local funding had dropped to near 50 percent. In the 1970s, the state became the dominant funding partner, and by 1985-86 the state share of total funding stood at 49 percent, with the local share just under 44 percent.

Over the same period, public school enrollment grew from under 26 million in 1929-30, to a peak of over 45 million in the 1970s, and has settled at about 39.5 million in 1985-86. The growth in per pupil revenues has exceeded the growth in per capita personal income since 1929-30. In that school year, the nation's per pupil revenue was 11.7 percent of per capita personal income. A decrease in the per capita personal income level during the Great Depression caused the percentage to increase to 16.1 percent by 1939-40. After a drop to 15.7 percent in 1949-50, the per pupil revenue as a percentage of per capita personal income has steadily risen to 28.0 percent in 1985-86. As an index of revenue effort, this figure shows that the United States as a nation is continuing to afford public elementary and secondary education a high budget priority.

Public school revenues did not increase appreciably during the 1930s because of the severe fiscal constraints of the Great Depression. Per pupil revenues increased slightly during this period partially because of an absolute decline in the number of public school pupils. The drop in total enrollment during the 1930s might have been greater if it had not been for the increasing number of teenagers attending high school (Tyack, Lowe, & Hansot, 1984). Enrollments continued to decline during the 1940s, but new revenues, largely from state sources, were provided for the public schools. The rise of births in 1946 marked the beginning of the baby boom period. As the baby boom children began to enter the public schools in about 1951, there
was a great demand for new resources for buildings, teachers, and materials. Of the increase in annual revenues for public elementary and secondary schools of $9.3 billion between 1949-50 and 1959-60, $5.2 billion was accounted for in increases in local revenues, $3.6 billion in increases in state revenues, and $0.5 billion in federal revenue increases. The costs of the enrollment increases of the 1950s were still largely borne by the local property tax.

By 1969-70, another $25.5 billion annually had been added to public school revenues. Some shift during the decade of the 1960s was seen from local revenues to federal revenues, largely due to the increase in federal funding from the Elementary and Secondary Education Act of 1965 and other War on Poverty education programs of President Lyndon B. Johnson. It was during the 1970s that the large shift from local to state funding took place. In 1979-80, total public school revenues were

$56.6 billion more than they had been ten years earlier. Over the decade, state revenues for public schools increased by $29.3 billion, while local revenues increased by $12.1 billion. This shifted the state share from 39.9 percent in 1969-70 to 46.8 percent in 1979-80 and dropped the local percentage of the total revenues from 52.1 percent to 43.4 percent over the decade. The federal share continued to increase, rising from 8.0 percent in 1969-70 to 9.8 percent in 1979-80.

The notable features of public elementary and secondary school revenues in the 1980s have been the drop in the federal share of total revenues from 9.8 percent to 6.7 percent in 1985-86, due to the deliberate policies of the Reagan Administration to lower domestic social spending, and the increase in the state share of total spending from 46.8 percent at the beginning of the decade to 49.4 percent in 1985-86. The local share remained relatively stable over the period, increasing slightly from 43.4 percent o 43.9 percent. While some analysts attribute the increase in state spending to the education reform movement of the early 1980s, a more convincing explanation is the improvement of the fiscal situation of most state governments following the period of national economic recessions from 1980 through 1982. During that period, the United States experienced 22 months of recession out of a total of 34 months (U.S. Department of Commerce, 1987). The steady period of recovery since late 1982 has provided a fiscal dividend for many states and has allowed them to increase funding for many public services, including public elementary and secondary education.

The Social and Political Environment of Public School Revenues

It is hard to ignore the impact of public elementary and secondary school enrollment declines since the early 1970s on public school revenues. By 1985-86, the nation's public schools were providing education services for 6 million fewer pupils than in 1969-70. The overall effect was to decrease the demand for large amounts of additional revenues and to permit the per pupil revenues to increase. Between 1969-70 and 1985-86, total revenues increased 270 percent while per pupil revenues increased 327 percent. By contrast, over the same period the Consumer Price Index increased by 193 percent. The enrollment decline decreased pressures on educational revenue sources and allowed school officials greater budgetary flexibility.

A counter trend which erased much of the budgetary effect of enrollment declines was the increase in social and legal demands for increased services for special needs pupils, including pupils with handicapping conditions, limited English proficient children, and pupils at risk of academic failure. Focus on the handicapped and limited English proficient largely resulted from federal legislation and court decisions in the 1970s, while the attention to children at risk of academic failure emanated from the state-level education reform movements of the 1980s. Studies, such as the well-publicized report by Hodgkinson (1985), documented the shifting demographics of the nation and the increase in the

numbers of minority, poor, and ill-prepared students in American schools. The increase in services to at-risk children, which have higher per unit costs of services, exerted increased pressures for public school revenue increases.

Another recent factor which has had an influence on public education revenues in many states has been the tax and expenditure limitation movement which began in the late 1970s. The national Advisory Commission on Intergovernmental Relations (1987, p. 116) reports that since 1977, there have been two states which have enacted general expenditure limits and four states which have imposed limits on property tax rates or levies. This movement has generally had a depressing effect on government revenues either through expressed limits or through the general overall period of fiscal constraint accompanying it.

A final factor in the public school revenue environment which should be noted is the apparent shift in values in the early 1980s from an emphasis on equity in public programs and funding to strong attention to excellence (Boyd & Kerchner, 1988). This trend may have less to do with the general level of public school revenues than it does with changes in the allocation of those revenues. As yet, such reallocation within the public school system has not been clearly documented but the emphasis has been broadly noted. There is some sense that the change in emphasis to scholastic excellence may have a positive effect on education revenues because there will be renewed interest in increasing funding for schools that improve performance. Again, such assertions are speculative.

The Current Status of Public School Revenues: A National Tour

Total public elementary and secondary school revenues, per pupil revenues, and the percentage of revenues from local, state, and federal sources for 1985-86 are shown in Table 3. Over one half of all revenues for public elementary and secondary schools are derived from just nine states: California ($16.0 billion), New York ($14.7 billion), Texas ($11.3 billion), Pennsylvania ($7.9 billion), Michigan ($6.9 billion), Ohio ($6.4 billion), Florida ($6.0 billion), New Jersey ($5.9 billion), and Illinois ($5.7 billion). The national average revenue per pupil in 1985-86 was $3,771. Four states had per pupil revenues in excess of $5,000. These were Alaska ($7,292), Wyoming ($6,362), New York ($5,601), and New Jersey ($5,300). The extraordinarily higher costs of living in Alaska make its revenue figure somewhat misleading. By contrast, five states had per pupil revenues of below $2,500: Arkansas ($2,492), Kentucky ($2,338), Tennessee ($2,333), Idaho ($2,332), and Mississippi ($2,051). In general, those states which received high proportions of their public school revenue from federal sources were poor states because much of federal education aid is distributed in inverse proportion to income levels. Those states where federal funds exceeded 10 percent of total public school revenues were Kentucky (13.3 percent), New Mexico (12.4 percent), Tennessee (12.2 percent), South Dakota (12.1 percent), Mississippi (12.0

percent), Alabama (11.8 percent), District of Columbia (10.9 percent), Louisiana (10.6 percent), Hawaii (10.5 percent), and Alaska (10.2 percent). The proportion of Black and Native American population is also highly correlated with federal revenue.

Also, there were sharp contrasts in the percentage of revenue coming from state sources and local sources. Certain states came close to being full state funding states because of very high portions of total revenues coming from state sources. These states were Hawaii (89.4 percent from state sources), New Mexico (75.4 percent), Washington (74.1), Alaska (68.9 percent), California (68.9 percent), and Delaware (68.8 percent). No other states had more than two-thirds of all funding from state sources. Local control states, those with very high percentages of public school funding from local sources, were: New Hampshire (88.9 percent from local sources), Nebraska (69.3 percent), Oregon (64.9 percent), Vermont (61.8), South Dakota (60.6 percent), and Virginia (60.0 percent). The District of Columbia had 89.1 percent of all public school revenues from local sources since there are no state source revenues because the District of Columbia is not a state.

The East

Only two states in the East had per pupils revenue in 1985-86 below the national average. These were Maine and New Hampshire. In Maine state revenue dominates, whereas New Hampshire is an extreme local control state. In general, the states in the East are states with higher per pupil revenue levels and states where the local share of revenue exceeds the state share. As a result, there is high per pupil reliance on local property taxes to finance public schools. These are also states with a higher proportion of populations made up of older people without children in public schools. Therefore, the potential for taxpayer protest against high public school property tax burdens exists. However, many of these states also have strong traditions of well developed public sectors and high taxes. The tradition of high support for quality public schools may work in favor of continued high levels of revenue.

The Midwest

While the Midwest has long had a reputation for supporting public schools, only four states in the region (Michigan, Wisconsin, Minnesota, and Kansas) out of twelve had per pupil revenues in 1985-86 in excess of the national average. The national economic recession of the 1980s and the widespread farm crisis hit this region hard. Illinois, Missouri, Indiana, and South Dakota had very low revenues per pupil. In Indiana, Minnesota, and South Dakota state revenues exceeded local revenues for public school support. Particularly low proportions of state funding were found in Nebraska (24.3 percent), South Dakota (27.4 percent), Michigan (34.9 percent), Wisconsin (36.6 percent), and Illinois (38.5 percent). With few exceptions, this is also a region with heavy reliance on local property tax revenue to support public schools. It is also a region with an aging population which may resist increased taxation for public schools.

The South

States in the South have a low level of per pupil public school revenue. The only states in the region exceeding the national average in this measure in 1985-86 were Delaware, Maryland, the District of Columbia, and Florida. In contrast to the East and Midwest, this is a region where the states dominate in school revenue. The local share of public elementary and secondary school funding only exceeds the state share in Maryland, Virginia, and Tennessee. In the Deep South and South Central areas, the states are clearly dominant. The state share of total revenue exceeded 60 percent in 1985-86 in Delaware, West Virginia, North Carolina, Kentucky, Alabama, Mississippi, and Oklahoma. The low level of funding and the high state share of public school revenue make schools in these states very vulnerable to the whims of the state governor and legislature. This is an area where discussion of education reform in the 1980s has been very strong, but where dollars to support reform have been more elusive. Also, schools in some states in this region (Texas, Louisiana, and Oklahoma) have been hurt badly by the recent drop in energy prices.

The West

The West is a very mixed region. Of the thirteen states in the region, the per pupil school revenues in 1985-86 exceeded the national average in six and fell below it in seven. One of those seven (California) fell only $9 below the national figure. State revenue for public schools predominates in some states (Montana, Idaho, New Mexico, Arizona, Utah, Washington, California, Alaska, and Hawaii). Local control and local support are very strong in Oregon, Wyoming, and Colorado. In Nevada, the local and state shares of school revenue are almost even. Proposition 13 in California in the late 1970s severely limited governmental revenues and brought the state's revenue per pupil level from well above average to its current position of slightly below the national figure. Alaska and Wyoming, like some of the South Central states, have suffered recently from lower energy prices.

The Future for Public School Revenues

To try to predict the future with any degree of precision is pure folly, but a sensitive and critical examination of some of the broad social, economic, and political forces in our society can provide important clues about future opportunities and constraints. These forces and trends will comprise the context within which school funding discussion will need to be made and will, then, shape more decisions.

The Political Economy of Public School Funding

Federal funding will likely remain below 10 percent of total public elementary and secondary school revenue because of concerns about the large federal debt and the continuation of budget deficits. Whichever party controls the national political machinery, the specter of gigantic

federal deficits looms larger. Republicans may choose to continue to de-emphasize the federal funding role in education, but Democrats who advocate an expanded federal funding role will find themselves severely constrained by the federal deficit and the need to deal with major national budget issues. For example, questions have been raised about the continued ability of the United States to maintain a large and expensive military presence around the globe when it is experiencing some fundamental economic shifts at home and becoming less competitive in international markets. (Kennedy, 1987)

Serious questions about significant increases in state/local public school revenues also exist. The public schools face increased competition for revenues from other public services, such as public health care, public aid, corrections, and recreation, and the proportion of voters with children in public schools has dropped considerably from a decade or two ago. (Kirst and Garms, 1980) Slow, steady revenue increases are more likely in the state/local sectors than dramatic infusions of new resources.

A great deal of interest has been generated recently in seeking alternative sources of funding for public schools. (Meno, 1984) Two of the more popular ideas for alternative sources of revenue have been school foundations and state lotteries. School foundations which channel private funds to public schools may have a marginal impact on revenue availability for school districts which participate, but their impact probably will never be significant and they raise serious equity questions in terms of who really benefits. State lotteries with proceeds dedicated to public education have had some limited success, but as states like Illinois have learned, there are limits to growth in lottery revenues and such revenues come at some political cost as they are increasingly seen as simply one more state revenue source. Exclusive access to one revenue source often serves to cause other interests to want to limit access to other sources of revenue.

Some Demographic Realities

Analysis of U.S. demographic trends suggests that the largest growth will occur in the population group aged 40 and up. In what may be called "The Age of the New Conservatism," the dominant voting blocs will consist of older, more stable, more security-minded individuals from two-income families in which leisure, health, and household consumption issues will be paramount and public education will not be a high priority. At the same time, the school-aged population will be increasingly from minority groups and the poor, with Hispanics becoming a major public school clientele. This change will create an increasing separation of those who will pay for public schools and those who will benefit from public schools. As a result, it may become more and more difficult to persuade voters to provide sufficient revenues for public schools. Shifting demographics will also impose greater demands in public schools as we see an increase in the number of poor, language-minority, and at-risk children in public schools. This shift could create a serious imbalance between expenditure needs and the availability of revenues.

Educational Changes and Values

One of the potentially pernicious features of the 1980s education reform movement, with its emphasis on excellence, is the possibility of a major backlash against the public schools if public expectations for the reform are not met. The public has been led to believe that increased funding for reform, either real or symbolic, will produce better results. If better results are not demonstrated through higher achievement test scores and other performance measures, the public may proclaim the public schools a sham and a failure and cease to provide financial support. Public schools, in order to maintain legitimacy and sufficient revenues, must take positive steps to avoid the bleak scenario.

A closely related issue is the increasing connection being made between school funding and performance. Specific proposals have been advanced in the 1988 legislative sessions in Illinois and New Jersey to tie school funding to performance indicators. Some educators have resisted proliferation of the use of performance indicators on the grounds that such indicators are too narrow in scope and are misleading and open to misinterpretation. However, the voting public and state legislators are requesting them, and in some cases mandating them, and schools must be responsive to those who provide financial support. Increased revenues for public elementary and secondary schools may depend on the ability of school leaders to develop an acceptable accountability system using performance indicators. The task will be difficult, but progress can be made and there is some serious attention being given to these issues. (Murnane, 1987)

While these concerns about excellence and efficiency are significant, equity cannot be ignored. The excellence movement of the 1980s has diverted some attention away from equity in school funding. However, the increasing proportion of children with special needs among the public school clientele will require refocusing attention on equity issues in resource generation and allocation. As more and more children from minority and poor families prepare to enter a labor force that is based on an information-oriented economy, the role of public education in economic growth and development will become evident and equity issues regarding access and equal educational opportunity will reemerge as central to funding decisions.

Implications for School Financial Administration

The impact of these trends make the role of the public school financial administrator, whether it be the superintendent, associate or assistant superintendent, or school business manager, all the more important. The success of any school program will be based on the ability of the school to generate revenue to support the program.

Educational Programs and Budgeting

Decisions about educational programs and budgeting cannot be regarded as separate issues and must be seen as simply two aspects of

the same issue. School financial administrators must learn more about the instructional process and program administration must become more knowledgeable about finances and budgets. Current revenues will need to be used in a more productive manner and public decision makers must be convinced that school funds are being used efficiently and effectively. This perception requires close cooperation among all members of the public school management team.

Strategic Vision and Concentration

Successful and productive public elementary and secondary schools will need to be able to define what is central to their mission, what they want to accomplish, and become better able to concentrate their resources on those activities. Financial resources will need to be focused on a limited number of core activities, and performance indicators will be needed to monitor progress in those core activities. Public schools have tended to try to be all things to all people and to have amorphous goals. Limited revenues and public accountability will require change in this approach. To garner new revenues, schools will need to be able to articulate a clear mission and develop programs which are designed to accomplish that mission.

Multi-Year Planning and Budgeting

With the annual state appropriations cycles which many states have, there is little incentive to look beyond one year in school district budgeting. However, changing demography and the necessity for revenue stability indicate the need to engage in planning and budgeting on at least a five-year basis. This allows a school district to anticipate new factors and problems and to plan for them rather than just react to crisis. This is particularly important in assessing service needs and engaging in personnel planning. Being able to project anticipated revenues is central to this process since personnel costs generally account for about 80 percent of school district operating budgets.

Analysis of Social, Political, and Economic Trends

Public schools are open systems that are strongly affected by the world around them. School financial administrators need to continually monitor, assess, and analyze pertinent social, political, and economic trends to ascertain their potential impact on educational service demands and on local, state, and federal revenues. Service demands can be affected by the numbers and characteristics of children born in the community and by in- and out-migration. Changes in the local and regional economics can affect both demands on schools and revenue streams. State economic growth and political climate can provide important information about future state revenue changes.

Political Astuteness and Sophistication

School financial administrators are often well prepared in financial management, but may lack the political skills that are central to the

profession. An old management adage suggests that some administrators make things happen, some let things happen, and many sit around wondering what is happening. In order to make things happen, an administrator needs to be astute in reading the current political situation and understanding its implications for public schools and public school revenue. Also, sophisticated skills in coalition building, political advocacy, and formulation of policy are needed to positively affect revenues available for school purposes. A successful school financial administrator will need to attend to the politics of finance as well as to the management of funds.

Performance, Accountability, and Marketing

A successful school district must perform well in its mission and be able to communicate that good performance to its various publics. A well conceived accountability system that includes a cost accounting element is important in measuring performance. It is also important in providing useful information for internal school district management. A high-performing school district that is clear in its mission is in a good position to market itself in the sense of having a reputation for a good product offered at a reasonable price. Such a reputation can be a key to increasing revenues by increasing enrollment (from private schools and by attracting new residents) and by bolstering political support for added resources. Consideration may also be given to marketing school services to clientele groups outside of the normal elementary and secondary school age groups as a way of generating revenues and building community support.

Conclusion

What public elementary and secondary schools do and the revenues they may be able to generate are affected by the external environment of the school. A school financial administrator must understand that environment and become a leader in positioning the school district to best relate with that environment. The revenues that schools receive should not be regarded as a given, but as a factor that can be altered through a better understanding of the context within which revenues are generated, and by acting to enhance those variables which increase the revenues available. This adds a dimension to school financial administration that is often overlooked, but which is critical if public schools are to flourish.

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Chapter 7

Personnel Trends: Hiring, Training, Evaluating, and Compensating

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Hiring, training, evaluating, and compensating employees deserve full attention because educators spend the greatest energies and monies in these areas. The effective development of these four processes in school organizations may ultimately be the key to all other aspects of school excellence. While the search for an appropriate mixture of these critical elements of school business management has presented a monumental challenge, no lasting or permanent solutions have been found. What exists is an understanding of the complexity and overwhelming importance of these four processes in developing an excellent staff and their interconnectedness to total educational leadership as schools move toward the 21st century.

Planning for the 21st century appears to be a remote, abstract exercise until it is considered that the kindergarten classes of the late '80s will be graduates at the turn of the century. While speculation on the future can be difficult in a rapidly changing world where the educational demands of an informed and expectant public continually increase, administrators preparing to enter into the new century must speculate on methods of staff improvement necessary to meet the demands expected from an uncertain future.

John Naisbitt, author of *Megatrends*, proposes:

- We have shifted from an industrial society to one based on the creation and distribution of information.
- We are moving in the dual directions of high tech and high touch, matching each new technology with a compensatory human response.
- No longer do we have the luxury of operating within an isolated, self-sufficient, national economic system.

- We are restructuring from a society run by short-term considerations and rewards in favor of dealing with things in much longer time frames.
- We have rediscovered the ability to act innovatively and to achieve results from the bottom up.
- Dependence on hierarchial structures is being abandoned in favor of informal networks.

These trends hold powerful implications for school administrators in the new century. Major societal shifts such as these impact the hiring, training, evaluating, and compensating of employees in educational organizations because what happens in the larger society is paralleled in the schools in many ways. Much of the theory of organizations and human motivation structures has become imbedded in education. Most schools and administrators are either knowingly or unknowingly consumers of psychological research by virtue of having gone through similar training programs which focused on human needs and the cognitive relationships in human behavior.

Although industry has generally outstripped education in terms of a deliberate attempt to structure formal mechanisms by which to conduct the course of business, schools have nonetheless slowly adopted private sector trends in hiring, training, evaluating, and compensating of employees. Such business trends have appeared in public schools because schools cannot long escape either societal progress or pressure. At the same time, fears regarding change, the nature of work, and ability to cope with new skills impact all persons who work in school environments. The school system workers of tomorrow will require knowledge and autonomy so they must be managed both for productivity and for satisfaction, for achievement and for status. While these concepts are perhaps widely accepted among those who lead school organizations, there is a need to understand that not all system residents are aware of or accept these principles.

Generally, schools have remained true to tradition by focusing on the top-down management profile which emphasizes the rational bureaucratic organization built on management control. The old rational paradigm contributed to structures which promoted, according to the book, *In Search of Excellence*:

- Big is better because of economy of scale.
- Low-cost producers are the only certain winners.
- Analyze everything.
- Eliminate peace disrupters.
- Management's job is decision making.
- Control everything through lengthy detail.
- Get incentives right and production will follow.
- The fiscal report is the bottom line.

These concepts, taken from profit enterprises, have never fit modern schools but have been widely practiced. Industry concepts result in a configuration leading to a heartless, abstract philosophy which removes life from a living education process, devalues experimentation and abhors mistakes, denigrates the importance of values, and ignores peer pressure as a motivator by fostering a competitive win/lose environment.

Fortunately, the top-down model appears to be diminishing rapidly as a viable organizational structure and is being replaced with a new paradigm of management. Research indicates that effective organizations structure themselves from the bottom up, while organizations which build on a top-down model are severely limited. New trends appear to emphasize organizational structures which use a grass-roots approach to involving staff in hiring, training, evaluating, and compensating employees. Such a view may be difficult to implement because it contravenes the long history of civilization, but because the evidence points to the emergence of radically different structures, administrators must be prepared to rethink their positions.

Recruiting, Hiring, and Training

School districts have long relied on traditional structures to define hiring practices. Because teachers and administrators are products of institutions of higher learning, schools have resultantly been forced to turn to colleges and universities for a steady supply of teacher and administrator candidates. Implicit in hiring practices has been the assumption that these "products" of higher education possessed the knowledge and skill necessary to successfully perform in the school setting. Because of the market dominance of college and university graduates and other related factors, few extensive mechanisms for identifying potentially successful employees have been developed by school systems. School districts have instead tended to rely on perfunctory interviews, academic credentials, character references, and the intuition of administrators in selecting personnel.

The course of history is difficult to overcome. Although school districts are sometimes willing to experiment with change, few models have emerged which systematically address concerns associated with the hiring process. Clearly, the practice of hiring teachers from personal interviews is likely to continue, whether on an applicant basis for advertised positions or through the use of recruiters on college campuses. There is, of course, no substitute for the experience of a seasoned personnel officer, who by virtue of skill and intuition, can select candidates from a pool with considerable success. Certainly, college and university training programs are likely to continue to dominate as the supplier of candidates, despite the calls for reform by various national groups. (Jordan, 1987) As a consequence, general improvements will be made; but until other issues of economics which play an important part in the quality and supply of teacher candidates are addressed, the traditional pool of candidates will remain relatively unchanged. It may be expected as well that school districts will seek to improve the training of personnel officers in interview skill techniques.

A few school districts are beginning to move cautiously beyond tradition by experimenting with some unique plans. One such approach is the leadership academy. (Thompson, *et al*, 1988) The academy is being examined and implemented in progressive school systems across the country in the selection and training of both teachers and administrators

by proposing that certain competencies that address the leadership educators expect of personnel in responsible positions should be possessed and cultivated in professional staff. One program which focuses on teacher selection places teacher candidates into the school system in the third year of the college professional education program, initiates them to professional education with one semester's observation, returns them the following year for a full semester of limited participation, and then involves them in an additional semester of full-time student teaching. At the close of the three semesters, the district has actively evaluated the candidate over a substantial period of time and is prepared to offer the candidate a contract if a position exists and if the candidate is of the quality desired by the district.

An analogous program, is the teacher leadership academy. While the approach above focused on identifying, training, and hiring new candidates for anticipated vacancies in the school system, the teacher leadership academy provides leadership training to existing teachers within the system. This assumes that teachers must be educational leaders and that they must be equipped to lead through specific skills and then empowered to act, utilizing those skills for the improvement of instruction. The academy, sponsored by the school district and the university jointly, delivers on-site coursework in selected areas of expertise seen as useful to the district in its educational mission and provides an extended internship to participating teachers, including release time to develop both skills and programs for implementation in the district. A corollary aspect places key administrators in nearly the same academy preparation, although focusing on training administrators on how to involve teachers in the leadership of the building and school district.

In a third program, prospective administrators are allowed release time and are placed in extensive advanced coursework and internships. The district evaluates them throughout a year-long process with the anticipation of offering administrative positions to candidates who meet the rigorous quality standards present in the academy. Livington, *et al,* in press, 1988) These approaches, echoed in several locations around the nation, provide a different view of hiring and training teachers and administrators by initiating them thoroughly into the organization and judging their performance after extended periods of intensive observation. (Thompson and Bailey, 1988)

Leadership academies have not provided the sole source of identification or training of teachers and administrators in school districts. The training of staff has taken several paths. Although school districts have traditionally looked to universities to provide trained applicants, districts have begun to realize that universities are not capable of providing finished products because experience provides much of the polish found in excellent teachers. Traditionally, the experience factor was gained by serving in the student teacher role, but districts are realizing that student teaching is often characterized by abbreviated and artificial circumstances, with both the cooperating teacher and university having an interest in completing the training session regardless of student teacher performance. As a result, school districts have begun to take an

active role in other methods of on-site training of staff.

The concern over these issues is being addressed in several ways. In many states, laws have been changed and state departments of education have extended the amount of time in which teacher candidates are under supervision. Additionally, the process described earlier, where candidates are observed over an extended period of time, more thoroughly addresses the concerns for brevity and artificial involvement.

Still other programs approach training in different ways. The benefit and credibility of in-house teacher training is growing. A major advantage seen by proponents is the ability to attract and retain teachers. In this model, districts are pairing new teachers with mentors in a coaching relationship. With the help of mentors, beginning teachers are required to develop goals, undergo observation by veteran teachers, and to share effective teaching research through weekly meetings on topics such as discipline, classroom management, and other critical issues.

The concept of mentoring now is receiving wide attention in the literature and in practice. While mentoring has been recognized for many years as a beneficial practice, districts are beginning to discover that deliberate attention to the research and the effects of collegiality offer wide benefits to schools which intentionally foster training programs on a formalized basis. Key elements found to be highly useful in mentoring programs include opening communication lines and developing a collegial atmosphere.

Mentoring has been adapted to certification guidelines in some states which have created provisional certification standards extending the practicum experience through the first year of teaching with formal assistance throughout the practicum from a university supervisor, district administrators, and peers from the teaching profession. These persons are charged with monitoring and assisting new teachers to make the transition into the classroom, requiring them to develop assistance plans which encompass meetings, additional academic training, and extensive evaluation procedures prior to full certification.

Still, hiring and training professional staff in many schools is bound by tradition and necessity. For some districts, limited resources constrict staff development opportunities and overburden small training staffs. Nonetheless, increasing state requirements for certification, increasing demands for accountability by the public, and calls to increase standards and performance are bringing new expectations to school districts for the hiring, training, and ultimately the evaluation of staff. Whether through the use of traditional sources of professional staff supply, the use of leadership academies for selecting and training teachers or administrators in districts, or the use of mentoring and coaching in school systems of various sizes, the demands for increased proficiency in hiring and training staff are growing.

Evaluation

Evaluation has followed much the same informal course as hiring and training of staff in education. Schools have generally been reluctant

evaluators of professional employee performance, with most structures providing evaluation only recently created in response to legislative mandates. School districts traditionally have invested heavily in evaluating student progress and relatively little in monitoring the teaching process. (Buttram and Wilson, 1987) Cooperation between faculty and administrators has been rare in the area of staff evaluation.

The need to provide responsive evaluation systems which address both the concern of teachers, as well as other staff, and the demands of an accountability-conscious public is paramount. As organizations have moved from scientific management models, with their inherent weaknesses and top-down design, toward a more free-wheeling and dynamic structure which recognizes expertness in addition to traditional authority, the need has similarly increased to find evaluation systems which are based less on ascriptive characteristics and more on performance criteria, while simultaneously employing empirical research findings on human motivation and performance. Clearly, few people are able to find fault with the concept of evaluation, but many have instead taken exception to how evaluation has been implemented and the criteria on which individual worth has been judged. Criteria in the past were unique to districts, reflecting individual bias and, at times, values that were antithetical to the aims of education in a democracy. Evaluations, often conducted only once per year, were seldom used as feedback to link performance with effective job practices. In most historical instances, evaluations have been used to justify salary increments or tenure, or to initiate contract terminations. (Buttram and Wilson, 1987)

The unfortunate result of evaluation practices in the past has been a general disenchantment with the whole concept of evaluation. In an effort to improve, schools have adopted highly standardized systems of evaluation focusing on characteristics and traits of effective teachers. Unfortunately, they have relied on indiscriminately ascriptive details of effective teaching, trespassing into areas only marginally related to effective instruction, and have consequently degenerated into identifying insignificant or peripheral attributes of minimal impact on the instructional process. Often the end result has been an evaluation process carried out only half-heartedly, or if pursued with vigor, met with opposition who view evaluation as a science that is at best infantile and at worst punitive.

In reaction, a view of evaluation which is process-oriented and inseparable from supervision is receiving renewed emphasis. Recent focus has centered on human resource supervision -- a process where those in the schools who have responsibility for aspects of the school's goals recognize their dependency on others to help them achieve these goals.

The era of single-source administrative control of effective schools is disappearing in favor of a highly dynamic expert conglomerate of professionals who help control their professional destinies. Although administrative evaluation will continue and efforts to increase its impact and effectiveness will escalate in the face of pressure to provide accountability, the top-down practices of the past will clearly no longer suffice. While such changes will not be welcomed equally by all, the refocus should

come as no surprise. Administrators need to recognize that the new generation of teachers and other professionals require a personnel-oriented organization rather than a more traditional, authority-oriented one. (Drucker, 1969) Therefore, the new evaluative role will necessitate specific skills, including knowledge about teaching/learning, organization, familiarity with data gathering instruments, human relations skills, and time management, conflict resolution, and stress competencies. (Pheiffer and Dunlap, 1982)

The new perspective on evaluation suggests several mandates to administrators. First, they must recognize that people, individually and collectively, are the pivotal players in effective organizations. Effective organizations are populated by confident people who expect to succeed and expect others to perform to their personal level of competence. This shared sense of personal efficacy translates into pride and commitment to the organization. The cumulative effects of this self-reinforcing cycle of success-pride-commitment-expectations for continued success are the development of shared understandings about the organization and an esprit de corps. (Astuto and Clark, 1986)

Second, recognizing the important role of people requires managerial action to support this efficacy. In *In Search of Excellence*, the authors contend that effective organizations must treat people as adults, as partners, with dignity, with respect, and as the primary source of productivity gains. They contend that despite relinquishing of control through participative processes, accountability can be maintained and even improved by establishing achievable goals and monitoring performance.

Third, the research indicates that the vulnerability of school employees must be addressed if meaningful change is to occur. A Boston University study of employee cynicism says that 80 percent of American workers do not trust management. Nowhere is trust more important than in the evaluation process, and the issue of vulnerability jumps quickly into prominence. School systems must demonstrate that evaluation is for the purpose of growth, not punishment, before employees will be open and trusting.

Fourth, change is difficult. Individuals are more likely to risk change if there are shared expectations for success and if managers have encouraged persons to utilize their abilities. Techniques for this include (1) give credit to others and let management take the blame, (2) relax mechanisms of accountability in favor of mechanisms for rewarding excellence, and (3) provide opportunities for job and role diversity for high performance. (Astuto and Clark, 1986) Effective organizations cannot be managed with a heavy hand. Managers often are predisposed to a counterproductive hierarchy, authority, and intervention which squanders available human resources in an organization inhabited by skilled, committed people. Instead, emphasis should be placed on important attributes of the evaluator such as his/her credibility, persuasiveness, patience, trust, track record, and modeling. (Duke and Stiggins, 1986)

Fifth, the development of effective school districts will require disaggregation in which employees are empowered with expertise and author-

ity. It is unrealistic to picture an educational organization of professionals acceding willingly to tight management control or to significant changes introduced by fiat. Equally difficult to imagine is all employees arriving at consensus or having equal ability to adapt. Disaggregation focuses on change, improvement, and effectiveness by embracing loose coupling and the requisite need for integration. The effective administrator in the new century must be willing to accept the increasing role of employees in organizational governance because empowerment of employees provides them with tools to be innovative and effective. Three beneficial commodities provided through empowerment are information (data, technical knowledge, political intelligence, expertise); resources (funds, material, space, time); and support (endorsement, backing, approval, legitimacy). (Astuto and Clark, 1986) This change requires relaxing control by administrators, recognizing that an organization has multiple leaders, seeking out and nurturing these persons, and ameliorating constraints. Administrators must trade structured control for support systems and create a climate emphasizing trial and eliminating penalty for errors.

Sixth, administrators must broaden their perspectives in order to take a more active role in supervision which seeks to change behavior and restructure environments. Possible methods include ego counseling, clinical supervision, interdisciplinary teams, small group counseling, articulation of programs, continuous progress focus, and summative/formative evaluation. (Pheiffer and Dunlap, 1982)

Evidence suggests that several activities promote effective school employee evaluation systems. Such activities include long-range strategic planning at the district and building level; board performance evaluation; administrator performance evaluation; climate surveys; goal orientation and verbalization of expectations for achievement; professional improvement commitments via written agreements; protocol materials such as videotaping and rating norms to train appraisers; and attendance data, and staff orientation. Processes which link administrator performance to worker outcomes, perhaps through tying worker performance to administrator evaluation, are also worth considering.

Ultimately, evaluation must relate to staff development. If workers feel more involved in setting their own goals, they are more committed to improvement. Linking evaluation and staff development is not inconsistent. Eventually, the evaluation system should become defined by the staff development process. It is thus appropriate to start with staff development on job expectations, develop some shared understanding among workers and supervisors, and then gradually introduce a goal setting approach to appraisal.

Compensation

In much the same tradition as hiring, training, and evaluating employees has occurred, school systems have constructed compensation systems which seek to standardize performance into objective criteria through the use of flat or lockstep salary rewards. While the single

salary schedule concept can be easily traced to the need to create protections for workers against arbitrary actions, the result has been more defensive than progressive. The result has been that current salary structures in most school systems serve to disenchant excellent workers while preserving the security of the incompetent. Although some districts have experimented with merit pay, career ladders, or other incentive programs, the salary structure for professional educators has remained almost uniformly featureless.

At the same time that history denotes apathy toward attracting and compensating excellence in the workplace and simultaneously makes the calls for reform evidenced in the national reports, workers themselves are dubious about reform, preferring equality rather than ranking by performance. Attempts to reform education at the grassroots level through various incentive structures have in most instances failed, and those which have succeeded have been marginal victories. Interest continues to grow in alternative forms of both accountability and improved reward structures. In 1983, no state paid teachers or administrators by performance; two years later 15 states used larger programs, and six other states had mandates to develop statewide career ladder plans. (Cornett, 1987)

Most of the present incentive programs focus on various definitions of career ladders, teacher career development, or combinations of the former with some element of merit plans incorporated into the design. Nearly all plans build in accountability measures which can be roughly translated into performance-based, process-oriented evaluation. The criteria in performance plans lie on a continuum, with some based on merit, others on performance plus extended hours/year, and others based on additional or differentiated duties; but all have in common the criterion of excellence. (Cornett, 1987) While knowledge and professional expertise are common criteria for reward, most plans require experience at each level and academic or staff development credits.

Whatever system is used, it is extremely important that school administrators change the way they think about salaries. A system must be developed to encourage workers to stay in the education profession and on the job. Administrators seeking to implement incentive plans should base efforts on principles which include significant economic rewards, continuous performance, noncompetitive awards and adequate funding plans. These should lead to differences in roles and responsibilities. Inherent in this design is the use of strategies of expanded job description and job redesign. Job expansion is an excellent strategy because it fits the adaptive and varied complexity of work and it blends extrinsic and intrinsic rewards. Job redesign offers even better rewards because it redefines roles and extends work schedules, includes formal staff development, involves peer supervision, provides opportunities for curriculum improvement, and disperses decision-making responsibility (Malen, *et al*, 1987). Other rewards associated with job redesign include a reduction in teaching loads, and a noticeable difference in salary and status.

Summary

What then, is the progressive administrator to anticipate? What overall trends may evolve and what are the competencies needed to cope with changes? Naisbitt argues that change is impossible unless organizations completely rethink their actions and develop a wholly new vision. The rethinking and vision must encompass the understanding that there is a fundamental mismatch between traditional love of personal liberty and the top-down, authoritarian manner in which the American workplace has operated. There is ample evidence to suggest that workers are excluded from the formal planning processes of schools and that schools are steeped in specialization, standardization, efficiency, productivity, and quantification. Excellent teachers and staff are insulted by organizational structures which abuse professionalism and expert training. These individuals recognize the top-down structure of schools' hiring, evaluation, and compensation systems, and many recognize very early that the hard work and contribution to the system will not necessarily be rewarded accordingly. The factory mentality and blue collar ideology of supervision and evaluation does little to satisfy the individual who has been educated in concepts of professionalism, since the opportunity to contribute meaningfully is limited to rare occasions.

Educators must rethink the present plans for hiring, training, evaluating, and ultimately compensating the professional employee in the new century. Business administrators must avoid three attitudes which spell disaster for business, and these attitudes are also frequently found in educational organizations. The faulty strategies of "quick-fix" solutions, short-term orientation, and low risk strategies concerned with stamping out brushfires cannot lead to effective solutions to attracting, developing, and retaining excellent employees in a growing climate of professionalism.

The countenance of education will change drastically as administrators become less managerial, working collegially with teams of employees to predict needs and organize resources, and as goal setting, personnel selection, allocation of resources, and staff development shift to a site-based model.

The next century's leaders must have high human skills, possess strong self-respect and respect for others, operate with a high boiling point and tolerance for ambiguity or uncertainty, and be comfortable with a flatter organization and equal empowerment. Visions of the 21st century suggest a future with major differences from the present school organization. The challenge is to become both visionary and realistic. The criteria for assembling dynamic and professional organizations found in the research, together with what is known intuitively and experientially, make a powerful plea for restructuring educational institutions to follow a more humanistic and professional model of hiring, training, evaluating, and compensating school employees for the future.

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Chapter 8

Risk Management Trends: A New Paradigm

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"Along with death and taxes, risk is one of the certainties of life," write the authors of the book, *Taking Risks: The Management of Uncertainty*. School districts, as they increasingly approximate the budgets of corporations while at the same time abrogating or limiting their immunity to suit, are becoming more reliant on risk management as a resource for reducing the possibility of loss, said Marc H. Rosenberg of the Insurance Information Institute. The increasing appearance of multiple risk factors that were not part of the school scene of the past -- environmental health hazards, personnel issues such as stress and drug abuse -- enormously expand a district's responsibility for awareness and action to protect itself against loss.

Risk management, to be comprehensive and preventive, must be an ongoing process. Therefore, the official responsible for directing a risk management program has as a major task the monitoring of changes within and outside of the organization which require or suggest changes in the program itself. Federal mandates concerning the workplace and the liability crisis of a few years ago are examples of changes to which a district must be ready to adjust in terms of its risk management.

Liability Issues

In recent years, state courts have tended to move away from the doctrine of sovereign immunity. Some have abrogated their immunity entirely; at least 30 states have limited it. Eighteen of those 30 states have, through legislation, established various types of tort claims acts. (Alexander and Alexander, 1985)

While these and other historical trends such as the enactment of state comparative negligence statutes have increased the vulnerability of a school district to liability (Alexander and Alexander, 1985), the reasons for which school districts found themselves involved in tort suits grew also. For instance, educational malpractice suits appeared. Although these cases have met with little or no success, they represent an effort to expand the traditional concept of tort law to include educational outcomes in order to obtain damages for a student on the basis of his knowledge deficiencies. (Alexander and Alexander, 1985) Additionally, liability around the transmittal of student information became more of an issue, particularly following the federal Family Educational Rights Privacy Act of 1974 which established standards for schools in handling student records. (Alexander and Alexander, 1985)

Along with expanding traditional tort liabilities, which increased the potential for financial losses for school districts, was the developing trend toward civil rights suits. This trend was encouraged and exacerbated by numerous pieces of federal legislation which prohibited discriminatory practices in public employment. Additionally, a revival of the Civil Rights Act of 1871 set into motion the means to collect damages assessed by the courts against a school board or individual school board member, or administrator, or teacher, for the denial of an individual's constitutional rights.

Environmental Safety

A second trend in risk management, in its fairly brief history in the field of education, is the concern for environmental safety. The spotlight on environmental health and safety belies the fact that safety has been a risk management issue for some time in the public as well as the private sector.

Employers have traditionally been exposed to liability losses for occupational diseases and work injuries sustained by employees. However, their exposure to loss through the law of negligence was changed by workmen's compensation laws that did not assign "fault" and allowed recovery for all injuries that were job-related, as well as occupational diseases. Dissatisfaction with these compensation laws brought about federal legislation in the form of the Williams-Steiger Occupational Safety and Health Act of 1970 (OSHA).

Since the enactment of OSHA, the workplace has been regulated by safety and health standards which demand compliance by employers. These are general industry standards which comply with federal regulations and include provisions for walking/working surfaces, means of egress, environmental control, hazardous materials, personal protection, first aid, fire protection, machinery, electrical, and many other facets of business/industry.

Employers and employees in education are also regulated by these standards as adopted by a given state. In Virginia, for instance, the standards are adopted by the Safety and Health Codes Commission of the Commonwealth of Virginia and the compliance guide is issued by the

Department of Labor and Industry. The guides are then distributed to the various school systems for their use in designing health and safety programs.

Employee Benefits Packages

Traditionally, the trends in risk management in school districts have been related to loss from property damage or the result of legal liabilities. A third area has developed as one of interest and significance to the risk manager. It is not one of property or liability loss, but rather the risk of potential personnel losses. School districts have recognized the wisdom of participating in planning against losses which essentially concern the individual employee -- death, disability, retirement, poor health, unemployment. Additionally, fringe benefit packages protecting employees from employment loss have come from collective bargaining demands. However, there are strong considerations associated with risk management that cause a district's concern for these potential losses to be important.

The first consideration is an organization's need to maintain good relationships with its personnel -- to have a highly motivated, satisfied, and productive staff. An employer's sense of responsibility to an employee, manifested in programs which protect them against employment-related losses, is a motivating factor likely to attract top-quality employees, engender organizational loyalty, and reduce absenteeism and rapid turnover. (William and Heins, 1976)

Historically, these trends have generated the search for solutions through which school districts might cut property, personnel, and liability losses. The strategies that have been and are increasingly being employed by school business officers on behalf of their districts to reduce losses are those identified with risk management.

Risk Management Strategies

One of the strategies frequently used by the school business officer to control risk uncertainty as well as the negative effects of a risk is to transfer the risk to another entity, specifically to an insurer. This traditional method of controlling the risk of liability lost its effectiveness and its reliability recently as the result of a liability insurance crisis which left the schools temporarily with a problem of considerable gravity. In the past decade, the cost of liability insurance to school districts had risen sharply as a result of multiple factors.

Included among them were the increased capacity of the American public to bring suit; the growing numbers of malpractice suits; and the larger and larger judgments of compensable damages in liability suits, as well as the occasional award of punitive damages. A few years ago, the situation for schools became so critical that even the availability of liability coverage was questionable for some educational institutions. (*Education Week*, 1987)

The responses to this crisis pointed out not only the urgency of strate-

gic planning for risk management in order to be prepared for such emergencies, but became part of the newer trends in risk management. Those responses have included the tendency to self-insure the organization, the self-insurance pool, and the in-house insurance corporation.

Self-Insurance

Some school districts have elected to self-insure rather than to transfer the risk to another insurer. Self-insurance means essentially that the institution itself absorbs the losses that occur through the establishment of a fund for that purpose. The in-house corporation differs from the self-insurance pool, which is a company owned by a group of educational institutions. For example, in 1987, the National Association of Independent Schools formed SCUUL (School, College, and University Underwriters), a $40 million corporation owned by 45 schools and colleges, which makes comprehensive insurance coverage available to its member schools.

This increased attention to alternative risk management solutions has helped schools to weather the hardest part of the liability crisis. It now becomes incumbent on districts and school business officials responsible for risk management to remain aware and proactive in anticipating ways to further secure themselves against risk and to obtain the protection that schools need. A district's business manager is key to the planning and projections implied.

Preventative Risk Management

Perhaps the trend most significant for school districts is the growing tendency to become more reliant on risk management as an approach for reducing the possibility of loss. The trend has been compared to the response that schools had to the oil crisis several years ago. "In the 1970s, schools began to insulate buildings when the price of heating oil went up.... Risk management should have been done to begin with," said an article in the education newspaper, *Education Week*.

Even among the self-insured, increased attention is being given to risk management. The Texas School Boards Association made the recommendation to each of its participating districts that it adopt a formal risk management policy. School districts around the country are not only writing policies regarding risk management, but are creating risk management offices to minimize potential financial losses that increasingly threaten the fiscal stability of a district.

Limiting Risk

A second set of trends relates to liability insurance and the insurance crisis that precipitated review of district practices. They include:

- A search for an increasing number of alternatives to commercial insurance as well as for more stabilizing methods of dealing with the cyclical nature of the insurance business.
- Strong involvement on the part of state legislatures who are attempting to be part of the solution by bringing various tort reform packages before their members.

- A move on the part of commercial insurance companies to exclude those risks regarded to be uninsurable -- examples include asbestos and pollution cleanup; or undesirable--such as athletic injuries, child-abuse charges, and "errors and omissions suits." (*Education Week*, 1987)

Corporal Punishment as Risk

A very recent risk of suit arising out of a school official's use of corporal punishment might also affect the rates of insurance companies or their willingness to include coverage against such suits. In March, 1988, a United States Supreme Court decision allowed to stand a federal Circuit Court of Appeals' decision that said that a student had a right under the 14th Amendment to bring suit in federal courts challenging excessive corporal punishment. In an Associated Press release of April 17, 1988, a psychology expert predicted that more suits against schools will result from the decision, possibly causing insurance companies to question the use of corporal punishment and raise the rates for schools who practice it. This latest vehicle for bringing suit against which a district must defend its liability joins a larger trend of nontraditional reasons for legal action against schools.

Among the more recent are negligence suits against school officials and boards for not protecting school children who allegedly have been abused -- particularly sexually -- by school personnel; and suits resulting from student suicides in which parents allege culpability on the part of the school or school personnel.

Other examples are suits arising out of increased violence in the school setting, particularly related to dangerous weapons, and the control of them; and suits resulting from AIDS victims -- student or employee -- in the schools. Perhaps another issue will be the possibility of violations of the copyright law. All of these potential liabilities bear implications for risk control.

Environmental Health

Environmental health has emerged as a top priority in the area of risk management. The dangers of lead, asbestos, and carcinogens in the school environment have become volatile and costly issues for risk managers and school boards and require a unique approach to risk assessment.

Risk managers face the necessity of making difficult decisions involving uncertain sciences, potentially grave consequences to health or the environment, and large economic effects on industry and consumers. What risk assessment provides is an orderly, explicit, and consistent way to deal with scientific issues in evaluating whether a hazard exists and what the magnitude of the hazard may be. (North and Yosie, 1987)

These concerns become very socialized, involving parent organizations, special interest groups, and communities. For this reason, the risk manager must remain cognizant of community environmental concerns as well as current legislation regarding environmental issues.

Crockford (1980) says that risk management concerning environmental health must be almost entirely social risk management. It will be based on maintaining awareness of trends in thinking about the environment which is likely to affect the general opinion of society -- and, ultimately likely to be embodied in legislation.

Specific legislation and guidelines addressing environmental issues at this time include the Environmental Protection Act, the Federal Insecticide Fungicide Rodent Act (FIFRA), the Resource Conservation and Recovery Act (RCA), and the Fire Prevention Codes.

Recommendations for the 21st Century

Recommendations to the school business officer for planning for risk management in the 21st century begin with the recommendation that sound practices get underway in your district if they are not already. This means, initially, a program of risk management.

> If...risk management is seen as a part of the general management process and tackles risk as a whole, then the system will be flexible enough to adapt to whatever the shape that future threats to its existence may take. (Crockford, 1980)

Whether or not a program of risk management involves an office or a department or simply a percentage of one person's job responsibilities depends on the size of the school district, the resources available, and the significance placed on it. Crockford (1980) says that the key to the successful introduction of risk management lies in the sound beginning if that commitment is expressed in the form of a policy statement issued by the Board.

Coincident with policy formulation are the administrative questions of the actual structure and organization of the office or program itself. Where will it fit on the district's organizational chart? Who will administer the program? A first move, according to Sara A. Moretz, Director of Risk Management for the Fairfax County (Virginia) Public Schools, is to evaluate the current practice in the school systems regarding risk management. There may be several offices working independently in the areas of insurance, finance, safety, personnel, or management which could be assimilated into one office under the auspices of risk management. Such an arrangement could provide improved communication within the district's offices, and even more significantly, provide a more efficient means of dealing with loss and the potential for loss.

The creation of a program of risk management initially requires a systematic assessment of the needs, possibilities of loss, and capabilities of handling losses within the school system. It also involves developing the means through which losses and their causes can be monitored. Computerization, where possible and available, is the most effective and efficient method of analysis. It provides instant access to records, allows for the manipulation and analysis of data, and maintains accurate and immediately current statistics (S.A. Moretz,) personal communication, July, 1988).

When a program of risk management becomes part of the district's

operation, it will need to encompass basic responsibilites related to at least three major trends discussed earlier: liabilities and insurance coverage, safety,and environmental health. Its primary purposes are to identify, control, monitor, and evaluate risks, with vigilant follow-up. Much can still be done in discovering risks and in controlling those risks as they are discovered, particularly those emerging out of the newer trends in risk management.

Prevention as a Focus in the Future

Once discovered, the risk of potential losses to a school district may be reduced to the point of being insignificant or eliminated entirely through appropriate practices of the risk manager. There are numerous strategies through which risks to the school district can and are being eliminated for reduced. Some of those include:

1. documenting and investigating accidents and injuries, analyzing accident and injury information, discovering and monitoring trends, changing services, or methods, or the use of particular equipment or procedures on the basis of the risk manager's findings

2. making safety inspections, responding to requests regarding student safety, analyzing product safety, correcting safety deficiencies, and researching and providing information on safety matters, purchasing safety equipment, and maintaining close coordination with other departments concerned with safety, such as the fire/police/health departments (Office of Risk Management, Fairfax County (Virginia) Public Schools, unpublished document).

The key to the reduction and elimination of potential losses may, however, most squarely rest on the risk manager's ability to build awareness, educate, and ultimately prevent losses. Specifically, as the school business manager considers what needs to be done to effectively and efficiently operate the schools with minimal losses in the future, prevention strategies emerge as a focus.

Education for Future Control

"If you can educate, you can control losses," says the executive director of the Texas state school services foundation. His foundation is involved in helping school districts educate, making available to schools videotapes on ways to improve their safety measures and providing law courses for school personnel on how to avoid "errors and omissions" for which they could be liable. (*Education Week*, 1987) There are numerous areas of training that can be addressed that have to do with both awareness and practice. Examples of what can be done regarding training include:

- Training in the avoidance of negligent behavior, particularly related to supervision. For example, training to counteract the fact that teachers

are most vulnerable to negligence litigation when they are not present in the classroom or even in the general vicinity when a child is injured could reduce potential risks.

- Training in federal and state legislative mandates and regulations regarding safety, liability, and environmental health.
- Training in the instruction of activities requiring a standard of extraordinary care -- the use of hazardous chemicals, or potentially dangerous equipment.

Finally, there are even more sophisticated and less traditionally-employed strategies for dealing with risk management, some of which at this juncture may not be viewed as the purview of the risk manager. However, there are strategies not to be disregarded by the school business official looking for ways to increasingly minimize risks, especially through prevention. One strategy is the audit. While an audit of the district's safety measures may not be new, the idea of a preventive law audit may be. Instruments are available, as well as legal consultants, to audit the policies (and the practices) of the district to determine whether or not they are in line with state and federal law. Such an audit would go a long way to reducing risk, and so would a periodic audit of the risk management program itself.

Another area to be explored for its value in reducing the possible losses of a school district is in the area of employee benefits, which have the potential of becoming organizational benefits. Mentioned earlier was the accepted value of a fringe benefits program, the employee satisfaction such a program might engender, and the consequent worth of high employee satisfaction in reducing losses to the district. If a district were able to move beyond support of the employee as provided by the more common packages of benefits, and to provide support for the employee to be as stable, trained, and productive as he or she is capable of being, would personnel losses not be subsequently reduced?

A Shift in the Paradigm

Such support is beginning to appear in the form of Employee Assistance Programs, in which districts are attempting to deal with alcohol and drug abuse, depression and the consequent loss of motivation, stress, burn-out, and other life/employment-threatening situations which lower the efficiency and effectiveness of staff personnel. This mode of risk reduction may be of particular significance to school districts dealing with tenured employees whose rehabilitation and/or renewal may be far less costly than dismissal.

Employee Assistance Programs, while marking new strides in personnel management, only scratch at the surface of the services that a school district might provide at a relatively low cost. Wellness programs, formal and informal, seminars in stress reduction, professional and personal development skills, assertiveness training, leadership development--the possibilities are large, and overlap with other areas of responsibility in the school district.

The school business official can take the lead in coordinating these

various elements, and in communicating between and among the various responsible departments. That may sound like a very different role -- or a greatly expanded role -- for the school business official. It is. It is, in many ways, a paradigm shift. Perhaps the school business officer needs to look beyond the present boundaries of risk management as he or she has now defined it, study present trends, anticipate future trends, and change patterns to include areas not previously thought to be within the parameters of risk management. Survival for schools in the 21st century is dependent upon that kind of flexibility and forethought.

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Chapter 9

School Food Service Trends: Feeding Children in 2001

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To the school business official or school food service manager, the term "Let's do lunch" means a lot more than a social meal with a casual acquaintance. School lunch is big business. According to the U.S. Department of Agriculture, nearly 23,000,000 school lunches are being served daily across America -- a total of over 4 billion a year. Federal funds amounting to almost $3 billion are expended on the school food service program each fiscal year. With the inclusion of local sales and contributions, the scope becomes the envy of fast-food franchises worldwide.

An industry of this magnitude requires the application of extraordinary management techniques if it is to be successful in the 21st century. To be successful, school food-service managers of the year 2001 must utilize planning concepts that are future oriented, but build on past experience. To plan effectively for the future, managers must begin today to determine what has to be changed to address tomorrow, and develop an action plan to meet the challenges of 2001.

A Status Report

The 1980s have brought us farther along in efforts to enhance food offerings, expand segments of the program, and broaden its scope. In the early years of the decade, in response to negative publicity about food waste, the federal government established a novel program dubbed "Offer Versus Served." It is designed to give students the option of selecting from three to five of the offered foods, rather than being required to take all five items and then discarding some. This has proven

to be a partial solution to the problem. To encourage this new program and avoid excessive bookkeeping by school districts, the federal government designated a three-item mean as a full meal for reimbursement purposes.

In the 1980s, the fast-food industry, television, and other advertising media have forced the schools and the U.S. Department of Agriculture to look at what food choices are being offered. The original intent of the school lunch program was, and has continued to be, to serve a nutritional meal meeting 1/3 of a child's daily nutritional requirements. However, for school food service operations to survive, the old fashioned "plate lunch" that many of us were accustomed to has had to be replaced by lunches that rival in selection and type the items to be found in fast-food establishments all over the country. In the 1980s, a balanced, nutritional meal is not restricted to the "plate lunch" type of serving but may be offered using so-called fast-food items.

In this decade school lunch administrators have had to be continually alert to all food-service trends (observing "what's on the street") and then adapt those trends to produce nutritional lunches for students of all ages. The 1980s were a time of competition when successful school food service operations have adapted to the new "media driven" market place.

The Future of School Food Services

Challenges in the day-to-day operation of a school lunch program in the 1980s have kept the school food-service manager and school business official busy. However, the coming decades will be even more challenging. Issues ranging from financial restraints to feeding 3 and 4 year olds will confront school business officials and food service managers as they approach the twenty-first century. And over the next twenty years, major concerns and problems not even identified today will appear. The key to success of school food service programs will not be so much what the problems and issues will be, but how soon they are identified and plans developed to resolve them.

The remainder of this chapter will focus on some probable issues facing managers of school food service programs in the year 2001 and highlight the importance and benefits of careful planning in successfully addressing the future. The issues selected cover a variety of disciplines, and demonstrate the increasing complexity of school food service in the coming decades. They include:

- Supporting the educational program;
- Meeting financial constraints;
- Facing competition;
- Implementing marketing skills;
- Enhancing the physical environment; and
- Developing food-service personnel.

Supporting the Educational Program

Traditionally, school food service has supported the educational program by providing the minimum nutrition necessary for students to

stay healthy and remain alert in the classroom. This objective is fundamental but can be enhanced as we move to the 21st centry. In the year 2001 cooperation among teachers, parents, and food service personnel will create student educational opportunities in such subjects as nutrition, ethnic differences, and etiquette. This increased involvement of food service in instruction will come from greater recognition of the food service program as an integral part of the educational organization. As a result, food service personnel will be more closely involved in and aware of broad educational goals. They will be asked, as part of the total educational team, to formally assist in reaching system-wide objectives.

Financial Restraints

Financial restraints will continue to have the most direct impact on the educational program during the coming decades. School food service operations will be required to become more and more cost effective so that limited educational resources will not have to be drawn from instruction. To do this school business officials and food service managers of the 21st century will be mandated to address food service operations as a business. This will result in regular financial reporting for each kitchen in the district. School boards will want to know which food service centers are profitable and will want specific data regarding those that are not.

Business officials and food service managers will have to be prepared to analyze food costs, warehouse and distribution expenses, staff ratios, level of cooperation between local food service personnel and school faculties, attractiveness of meals and dining spaces, and loss control at each school cafeteria more closely than ever before. And, they will have to be prepared to present to school boards business-like recommendations to stem losses and/or increase profits at various centers.

In the year 2001, those responsible for school food service will have to defend basic operating procedures from a cost perspective. No longer will food service operations automatically be an "inhouse" function. School boards will demand that school business officials provide indepth analysis of the cost-benefits of such management approaches to feeding children as food service:

- Provided completely (including staff) by a contractor.
- Provided by a contractor, but with the employees on the school payroll.
- Provided by school personnel with the support of periodic contracted consultants.
- Provided by school personnel without contracted external support.

School business officials and food service managers will also be held more accountable to minimize revenue and equipment loss. Control of inventory, monitoring of fluctuations in revenues from individual schools, minimizing theft of food goods, and controlling costs of fringe benefits will be increasingly important food service management functions.

Meeting the Competition in 2001

Once school food service is acknowledged as a business in the 21st

century, two basic aspects of a business will become apparent: competition and customers. Competition will exist not only through direct alternatives such as sack lunches and nearby restaurants, but also through quality expectations. More and more students will have broad exposure to restaurants with quality food and service, and to attractively prepackaged total meals at home. As a result, their expectations for quality, variety, and convenience will be raised. If these are unmet by school food service programs, students will refuse to participate, and parents will demand a change.

Meeting competition in the 21st century will require knowledge of the customer, the student. The eating habits of today's students are different from those of their parents. The same will be said in the year 2001. Therefore, another of the challenges of school food service will continue to be meeting two often divergent expectations: the students' and the parents'.

Marketing School Food Service

The concept of competition raises the question of expanding the market. In the 21st century school business officials and food service managers will be looking to increase profits by serving dinner in addition to lunch and breakfast, feeding preschool children and senior citizens, and, possibly, serving meals on weekends.

The extent to which this happens will depend on the use of market analysis and marketing techniques. School business officials and food service managers of 2001 will have to be knowledgeable in marketing research and interpretation of trend data. They also will have to be aware that as they attempt to expand their circle of customers, others will be doing so as well. Therefore, those responsible for school food service must be prepared to deal with the political issues and problems that result when a public sector enterprise is competing for the revenues targeted by private sector businesses.

Physical Environment

As the family unit continues to deteriorate, schools will become "family." As a result, school meal time will be expected to serve social needs and build a sense of community for the students. The school dining area of the year 2001 will become a place of warmth and comfort, inviting students to stay and visit. Tables and chairs will promote small group conversations. Colors and lighting will provide a restful, nurturing environment. Meals will be served in containers that promote the feeling of "home" instead of "institution."

Food Service Staff

The school food service staffs of the year 2001 may be the key to success. It will be they who interact with childen regarding nutrition. It will be they who do or do not "buy into" economizing of operations and control waste and loss. The food service directors and school business managers of the 21st century will have to select hardworking, dedicated personnel, train them well initially, pay them appropriately, update their

skills regularly, and involve them in goal setting and decision-making, if school food service as we know it today is to survive. Successful private sector businesses learned long ago that, regardless of the quality of the product, if the customer is not happy with the service, the enterprise is destined to fail. Similarly, the school food service staff must be recognized as a vital resource, or privitization of the food service function is inevitable.

Other Future Trends

In addition to the general issues already addressed that face school food service programs as we approach the 21st century, many others are likely to emerge. Though the list is by no means exhaustive, and the creative food service manager will think of many more, we offer the following for consideration:

- Changes in societal attitudes towards eating will put ever increasing pressure on schools to provide healthful, nutritional meals.
- More and more school systems will get out of the food business to control costs and escape labor/management disputes.
- The computer will come to control school food service continuously monitoring everything from cooking time, to portion size, to staff productivity.
- To control labor costs, districts will turn more and more to prepackaged meals that are simply heated up.
- Students, including pre-school youngsters, will have a growing variety of food choices each day.
- Financial pressure will cause increased consolidation of small programs with food bulk preparation growing in use.

Impact on Food Service Operations

The answer to how the future will impact on specific school food service operations depends on how prepared local school business officials and food service managers are for the coming changes. If changes are not anticipated and planned for, a food service operation may lose all of its "customers" and not even know why. Or, unexpected, dramatic increases in operating costs may put programs and personnel in jeopardy.

On the other hand, a school food service program with forward looking leadership may prove itself to be indispensible in the year 2001. Through careful market analysis, monitoring the efficiency and effectiveness of operations, use of public relations campaigns, and constant attention to the "customer," a good school food service program in the 21st century may not only stay in the "black," but become a "money maker" and "PR Plus" for the school system.

For this to happen school business officials and food service managers must institute the same careful process of long-range strategic planning used by businesses. This type of planning will mandate careful and regular data collection and analysis, qualitative and quantitative projec-

tions of future trends, and development of specific strategies for improvement and change. Such planning will require both time and resources -- commodities often in short supply around school districts. However, the alternative is akin to continually swimming in shark-infested waters. It's not a matter of if you will be eaten alive, but, rather, when.

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Chapter 10

Transportation Trends: Carrying Students Toward the Future

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The transportation of students to and from schools will continueto be a critical area of responsibility for the school business managers as the year 2001 approaches. School boards, parents, and taxpayers will increasingly demand efficient routing of buses, cost effectiveness, and safety for students. Meeting these demands of policy makers and the public will require indepth understanding ofwhat will be expected of school transportation in the 21st century. School business managers who best meet the transportation needs of their school districts in the next 15 to 20 years will be those who begin today to analyze trends and identify problems they will face.

In the decade of the 1980s, school business managers and school systems have been faced with transporting well over 20 million students more than 3 billion miles annually. While some students are transported very short distances, others still must ride the school bus for hours. The increased number of miles driven and largernumber of students transported annually results in approximately 37,000 school bus accidents and 45 fatalities.

Some school business officials faced yet another problem in the 1980s. In 1988, the US Department of Labor ruled that persons under the age of 18 could no longer drive school buses. In states where students have traditionally been the bus drivers, a mad hustle to find adult drivers has occurred. These states are not only finding it difficult to hire qualified adult drivers but also face the problem of finding extra dollars to pay the kind of salarynecessary to attract the adult.

The challenges of transporting handicapped students was definitely an '80s issue for the school business manager. Many handicapped students ride school buses specially designed for them. The cost of

transporting these children is staggering. While the annual cost for busing a non-handicapped student is $266, the average cost of transporting a handicapped student within the community is nearly eight times that -- $2,000. If a handicapped student must be transported to other communities, the cost can rise to $7,500 annually. (Greene, 1987)

Another challenge that faced by school business managers in the transporting of handicapped students in the 1980s was the issue of driver training. The riders of "handicapped" buses are very different from the riders of "regular" buses. They have different needs and problems, some of which can be life threatening. Therefore, much attention must be paid to training drivers of buses for special students. These drivers must know the characteristics of their students and be able to use learning behavior management techniques. They must develop ways to interact effectively with the parents and guardians of handicapped students, and they must learn how to evacuate students, both ambulatory and non-ambulatory, from the bus in emergency situations.

School business managers of the 1980s also have been challenged by a myriad of technological advances. Computerized scheduling of routes, electronic communication of emergency information, sophisticated maintenance equipment, and complex data analysis programs have changed the world of transportation more in one decade than in all previous eras combined.

Of all these technological advances in transportation in the 1980s, the computers has proven to be the tool of survival. With computers school business managers have the capability of reducing annual bus mileage by up to 20 percent, saving the district cost of fuel and buses. (Freeman, 1985) Or, they can use a computer program, such as the Dispatcher's Assistant, to aid in training drivers of special education buses. And, school business managers canuse computerized special education route scheduling to effectively select the optimal special education instructional sites in the district.

The computer can also be used by the school business manager to increase efficiency of fleet maintenance. By compiling data on the number of miles traveled, the dates of routine preventive service, the amount of fuel used, and the problems reported by drivers, districts are better able to keep buses in good, safeworking condition. In addition, by using the data storage the wordprocessing capabilities of the computer, school business managers of the 1980s are better able to compile the reports, which are increasingly required. Daily assignment of bus routes and vehicles can be more efficiently accomplished. Accounting logs can be maintained, and audits more easily carried out. (Caswell and Hall, 1987)

Other technological advances now available to the school business manager responsible for bus transportation include such systems as the Schoolbus Alert Monitor (SAM), which is used to notify special education students that the bus is on its way to pick them up. Also available are sensors that let the bus driver know when there is movement in the danger zones around the bus.

With all of these technical break throughs, the challenge to the school business manager is to know what to use when. For every technical

application, there are usually dozens of vendors, all claiming to have the best product. And, for every technical application there is a need to have trained personnel to perform required operations.

Safety is annother big school bus transportation issue faced by school business managers in the '80s. To belt or not to belt currently is one of the hotly debated topics in transportation safety. Opponents and proponents alike cite numerous "facts" to support their cases. There are many reasons given for opposition to seat belts. Some say the dollar cost is too great -- more than $20 million nationally. (Wineland, 1985) Others say that head and neck injuries are increased with the use of seat belts since the "child's body can rotate around the belt in a crash, throwing the child against the seat in front of him so that his head and shoulders bear the brunt of the impact". (Zakariya, 1985)

Still others say there are alternatives to the use of seat belts which may have a more positive, less costly impact. Among those cited most often are improved bus design, concentrated driver training for both the regular bus driver and the substitute driver, additional rider training, and more frequent use of other available safety features since most of the injuries and fatalities occur outside the bus rather than on the inside. These safety features include public address systems, two-way radios, stop arms, cross-over arms and mirrors, strobe lights and warning bell. Comeau, 1985) Others point out that there are so relatively few bus accidents and injuries that seatbelts are not a priority issue.

Proponents of seat belts in buses, on the other hand, argue that the saving of one life is worth the investment in terms of dollars. Medical and dental professionals feel that students are safer from bodily injury when they wear a seat belt. Proponents also argue that using a seat belt on the school bus serves to reinforce safety behavior in cars. (Fast, 1985)

Another bus safety issue challenging school business managers in the 1980s, which has received much attention in the media, is the number of students who are killed when the bus driver runs over them -- estimated to be 65 percent to 70 percent of the outside-the-bus fatalities. (Comeau, 1988) Education of the driver is seen to be one of the remedies for this tragedy. For example, if drivers knew thatkindergartners were five times more likely to become a fatality than other children, then drivers would know to be more cautious whendischarging this at-risk group. Another strategy is the education ofthe students who ride school buses. Well-planned instructional units, practice exercises, films, brochures, written correspondence to parents, and safety manuals help to make exiting a school bus safer. (Button, 1988 and Fast, 1985)

So, what can be said of school transportation is that school business managers responsible for transportation are busing more students than ever before, nearly 22 million daily, making the school transportation system the "largest form of mass transportationin the world". (Zakariya, 1985) Furthermore, those business managers face continuing challenges to provide safe transportation, meet the needs of special students, and use tech nological advances to run efficient bus operations. Without a doubt, school bus transportation is more complex and demanding than ever before -- but the real challenges are yet to come.

Transportation Challenges of the Coming Decades

What does the future of school bus transportation hold for the school business manager? What trends can we reasonably predict? Are there less predictable trends which might have an impact on student transportation in the future? And, what should a school business manager do to prepare for the changes these trends may bring? This section of the chapter explores the possibilities and offer suggestions to school business managers in an effort to carry a safe, efficient transportation system into the 21st century.

Computers in Transportation

Computers are a fact of life for most Americans. They are in most businesses, most schools, and many homes. While the number of computers is growing, they are also getting faster and smaller. There is a proliferation of programs with a plethora of uses, many of which will have a profound effect on school bus transportation. The school business manager can expect to see the continued use of computers for route scheduling, for communicating during emergency situations, and for the storage and retrieval of data in the 21st century. But, the computer of the future will be able to do more, be much faster, and be less expensive.

School business managers will want a voice-activated computer on each bus so that the driver and the dispatcher at some central location can be in touch constantly. Student discipline problems will be relayed promptly so that when the student steps from the bus at the school site an administrator can deal with it immediately. When there is an emergency situation on the bus (a child has aseizure, for example), a driver will get assistance on the spot via computer. Using a computer, a driver will communicate weather conditions, accidents, and other pertinent information to a dispatcher. A computer will also be used to keep track of riders as they enter and exit the bus. In emergency situations, when it is essential to know who was and was not on board, a driver will have an accurate record.

Computers will become an increasingly vital tool in training school bus drivers. Training modules will allow potential drivers to experiment with various decisions in given situations to find the best approach for dealing with problems they are likely to encounter on the job. Using computer simulations, potential drivers will obtain valuable experience without endangering students.

What will effective business managers be doing to keep up with this trend toward greater computer use and its implications for student transportation? School business managers in the year 2001 will be computer literate, understanding computers, their potential, and knowing how to use them. Above all else, though, business managers will become proactive. If a computer can save the district money, if it can offer information to drivers which may save lives, if it can make a business manager's job easier, then successful managers will take steps to see that their districts get the best, state-of-the-art technology.

Safety Issues

Another trend which is likely to affect school bus transportation is a continued emphasis on safety. School business managers can expect increasing pressure from parents to install seat belts on buses. In addition to organizing activities at local level, national groups have also been involved in pushing seat belts on buses. The National Parent Teacher Association (PTA), the National Coalition for Seat Belts on School Buses, and the American Academy of Pediatrics strongly support legislation which would require that all school buses be equipped with seat belts.

There will also be increased pressure for school business managers to ensure the safety of children outside the bus as the bus is loading or unloading. There will be calls for additional training of drivers, of teachers, of parents, and of the children who ride buses. Manufacturers will continue to produce sensors, safety arms and other devices to make students safer as they enter and exit the bus. Each time a fatality occurs, the pressure to search for answers will increase.

How can school business managers cope with the increased pressures to provide safe transportation both inside and outside the bus? What should be done to ensure that every precaution has been taken in order to safely transport children? An effective school business manager of the year 2001 will personally push for 100 percent effectiveness in the safe transport of children. This is one area where zero defects must be the motto. School business managers will be a strong advocate for continued research on the most effective means of ensuring safe student transportation. If seatbelts are the answer, then by all means business managers will lobby for their installation in school buses. School business managers will see that all who are involved in school bus transportation, from drivers to teachers to students and parents, are thoroughly trained in safety procedures.

Fuel Supplies

If conflicts with petroleum-producing nations increase, and if the United States is unable to produce an adequate supply of fuel, school business managers of the 21st century can expect a trend toward the use of alternative fuels, which are less costly and, in some cases, friendlier to the environment. Currently, diesel fuel is the most frequently used alternative fuel. Others include propane, methanol and methane. Experimental use of other means to power buses can be expected in response to conservation efforts, cost-saving measures, and international conflicts.

While the need for and the use of alternative fuels will not be determined exclusively by school business managers, it is still imperative that they be prepared to advise those who ultimately make a decision to move to alternative fuel sources. The question, then, is how to become prepared? Successful school business manager of the year 2001 will keep close tabs on fuel supplies and ona regular basis so that increases in price and decline in availability can be readily noted. Business manag-

ers will be familiar with alternative fuel sources, their strengths, and their problems. By reading and by visiting sites where alternative fuels are being used, they will be better prepared to make an accurate assessment of each.

Legislation in 2001

Federal legislation on environmental issues can be expected to increase, and this trend will have a powerful impact on school business managers as they seek to provide safe and cost-effective transportation systems. It is estimated that 25 percent of the 2.3 million underground tanks which store, among other things, fuel for buses, are leaking. Thus, the Environmental Protection Agency (EPA) has already passed numerous regulations that affect school districts. Subsequent regulations can certainly be expected. EPA banning of such hazardous materials as asbestos in brakes will continue to increase.

What can school business managers do to keep up with environmental legislation which will have an impact on transportation? Successful school business managers in the 21st century will read, read, read in an effort to anticipate regulations. School business managerswill be proactive in this area, also. For example, before the EPA regulation to ban asbestos brakes, the Poughkeepsie, New York schooldistrict had all buses installed with nonasbestos brakes.

Education Trends Affecting Transportation

Several issues that are educational in nature will directly affect transportation in the next 10 to 20 years.

Computer Instruction

Computers are being used in numerous creative ways to educate youngsters. The ability to instruct via the computer will have a great impact on student transportation. It is quite likely that in the future students will spend part of their normal school week at home, being instructed through their home computer. Additionally, in sparsely populated areas, where distance and time from students' homes to school are tremendous, school business managers can expect continued and increased use of computers as a prime medium of instruction. One major implication of this is that there will be more scheduling challenges. There will be situations where some students attend school and ride a bus every day while others go on a Tuesday/Thursday schedule. Others may be studying at home in the morning and going to school in the afternoon.

What can school business managers do to be prepared for staggered educational schedules that may result from the use of home computers as substitutes for regular, at-school instruction? School business managers must be part of an administrative team that makes decisions about where and when students are taught. School business managers can provide decision-makers with data on the effect of scheduling changes on the transportation system. While the best education for children must

be the number one concern, thought will have been given to the fiscal impact on the transportation system.

Moving Classrooms

To date, little has been done to use school buses as a place of instruction. With increased shortages of adequate classroom space in certain areas of the country, and with the continued reluctance of the public to increase taxes, it is likely that retired school buses will be renovated so that instruction can take place inside them. Already, in New York, an old bus has been converted into a moving writing laboratory. Called BRATPAC (Bused Reading Achievement Through a Publishing Activities Center), the bus holds a computer, a paste-up area, a stencil cutter, a duplicator, a lettering machine, a collator, and a binder. BRATPAC serves four schools, one middle and three elementary, staying at each for three weeks. Students with the help of their teacher and an instructional assistant, publish their writings in the BRATPAC. (Keville, 1984)

School business managers can also expect that more thought will be given to the use of school buses as a place of instruction while students ride to and from school. With traditional video and with interactive video, it is possible to use travel time as learning module. In the year 2001 students on buses may watch travelogues which introduce a new country each week. They also could be introduced to classical music, poetry, or famous art while riding the bus. The possibilities are limited only by the imagination.

If a school business manager is imaginative enough, he or she may find a way to make schools more effective by channeling student behavior in a positive direction. It is just as possible that a good learning experience on the bus will enhance the ongoing activities of the regular classroom in the 21st century.

What should school business managers do, then, to see that school buses, both retired and active, enhance the instructional process? Successul school business managers of the year 2001 will be knowledgeable of the instructional programs within their own school systems. They will know what the instructional needs are. These school business managers will then assist with finding solutions to instructional problems within their districts. While they will certainly explore all areas of their function for possible answers, business managers will not overlook the transportation system as a possible answer and will consider it integral to the instructional program.

Demographic Issues

Legislation which affects the educational system frequently has an impact on school bus transportation. The future will likely be dotted with more and more laws which have such an influence. One trend which will probably influence school transportation is the blurring of district attendance lines. For example, effective 1989-90, parents in Minnesota have broad discretion over where they send their children to school. No longer will students be required to attend school in their residence district. By law, children entitled to free and reduced-price

lunches will also receive transportation. As this trend expands, problems with the length of routes and jurisdiction will have to be resolved.

Demographic changes are also forcing legislation which will greatly influence education, and consequently, school bus transportation. Since more and more teenage girls are having babies, school business managers can anticipate legislation that allows teenage mothers to attend school with their children. As a matter of fact, legislation in Minnesota entices dropout mothers back into the school system by providing transportation and child care. (Snider, 1988)

Not only will school business managers of the year 2001 face the challenge of transporting babies, they will likely have to transport adults, also. Futurist Marvin Cetron predicts, "In the year 2000 adults will want strong schools for themselves and their parents, not only for their children." He anticipates the need for retraining workers on a frequent basis and sees the public school system as a prime medium for such training. Business and governmental incentives may make such proposals more palatable for school systems. But, school business managers will still cope with problems inherent in transporting a very diverse population to widely scattered sites on what appear to be quite erratic schedules.

With interest in school-business partnerships, business managers of the future can anticipate legislation which allows students to earn course credit while working -- trying out what he or she has learned in the classroom -- during part of the school day. The implication is more miles and more erratic schedules for transportation systems.

In many states the school day already has been lengthened. A 12-month school year is also being tried. For school business managers, this means that buses are on the road earlier and later in the day; in some cases, when visibility has been greatly reduced. It also means that more miles are being driven. This all adds up to additional costs to the transportation system as well as increased concerns for passenger safety.

How can school business managers anticipate and prepare for these changes? Successful school business managers will keep up with demographic changes that may affect education and, hence, bus transportation. They will watch for pending legislation that may affect education. Once changes are imposed, business managers should ask, "Will these changes induce further change in the transportation system and what can be done to facilitate these changes?" This school business manager also will be able to articulate the impact of proposed educational legislation on the transportation system to decision makers so that they understand the spinoff effects before any decision is made.

Summary

School bus transportation has been and will be a vital function of school business management. Parents and policymakers will continue to demand that school transportation be safe, efficient, and cost-effective, regardless of how schools and transportation systems change in the future. While there are many things school business managers can do to

ensure that transportation system meets the demands in the next century, two tasks are essential. First, school business managers of the 21st century must be informed. That means reading voraciously, not only about transportation but also about everything that is happening in education. Second, school business managers must be proactive, seeking ways to improve the system, to anticipate changes and challenges, and to enhance the instructional process. Only then will they be able to transport students effectively into the 21st century.

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Chapter 11

Instructional Trends: The Economics of Reform

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As educators rush to reform schools, the outcomes are far from certain. The only sure prediction is that whatever reforms are made, the school budget manager will have to deal with an even greater challenge. Somehow, the price of the reforms will have to be paid. While business and government are demanding improvements, there is no substantial increase in funding. Therefore, the budget manager is going to face a classic budget problem: how to pay for innovations when the current budget does not really cover all the basic costs of the operation of the school.

As individual schools and school districts consider changes, the school budget manager has a critical role in the process of reform. A change in curriculum requires a change in the allocation of resources, and very few of a school's resources are free. Even a volunteer represents a cost in terms of the staff time to coordinate that volunteer's work. The school budget manager must join the dialogue on reform if the changes proposed are to fit within the school's budget. The simple fact of finance -- that there is a limit to available funds -- must be considered. If, however, the budget manager can bring the perspective that what really is being considered is resource allocation, the decision-makers in a school district may find creative ways to deal with curricular improvement. As schools move to school-based management models, including teachers, parents, and principals in teams to work for improvement, many ideas will be proposed. The school budget manager must be prepared to join that team, ask key questions, and evaluate the outcomes of changes that are introduced. While the budget manager is responsible for the investment of funds in those improvements, those funds represent much more than money. The decisions on spending determine the use of invaluable

resources: the time and energy of the school staff and students. In effect, these economic choices also are curricular choices. As budget directors face the challenges to fund reforms, they must be prepared to question the initiatives, examine the models, and work with their partners in the curriculum. To enter this dialogue effectively, the school budget manager needs to comprehend the nature of curriculum. That manager also needs criteria to use to evaluate proposed reforms. Finance provides some models. How cost-effective is one program in contrast with another? Economics provides a broader framework for evaluating curriculum, however, since its domain includes not only budgetary concerns but also the entire production process. In the following sections, major principles of economics are applied to develop a series of questions that can guide the examination of the current curriculum as well as the propsosed changes.

Curriculum

Economics deals with the continuing problem every society faces: scarcity. The key resource in a school is time: it is the only resource that cannot be replaced or increased. The twelve-year-old student moves inexorably toward the age of 13. A school only has so much time to enable that 12-year-old to reach the age of 13 with more knowledge and skills. That limit on time puts great pressure on the curriculum. Educators must fit all the other available resources effectively within that time limit.

What are the other resources? To answer that question, you need a definition of curriculum. The broadest definition is the most practical and useful. The curriculum is the school: all the activities, materials, workers, volunteers, and students that combine to produce the school's product -- education. More than the structuring of time, it is the allocation of every resource. It includes the time and energy of parents, including the hours spent on homework, on after-school projects, and on community-based activities.

Therefore, a school's budget lists only some of the inputs in the curriculum. While school budget decisions are curricular choices, Harold Rugg (1936) stressed that:

"The study of the curriculum and curriculum-making, therefore, becomes the very central interest of all educational workers -- teachers, parents, administrators, or specialists. All other jobs in education depend upon the curriculum. Buildings, for example, can be properly designed, constructed, and operated only in terms of it; budgets must be planned to fit it; home and school co-operation is built around it."

Therefore, every allocation -- whether to maintain current programs or to change them -- is both an economic choice and a curricular decision. That these questions are both economic anc curricular makes the work of the budget manager more critical. It also makes the principles of economics more relevant to the curriculum decision-making process.

An economist asks four basic questions about the economy:

- What is produced?

- How much is produced?
- How is it produced?
- Who benefits -- how (and to whom) is the product distributed?

While those four questions were designed to profile economies, they also can reveal the basic patterns of a school's curriculum practice. In fact, had the curriculum designers stopped to consider such key questions before making curricular choices, the structure of the curriculum in schools would be easier to comprehend and probably would be more effective. The following sections use three of those four questions to organize a guide to curriculum economics. The questions of distribution -- who will benefit -- already has a clear answer. When we improve education, the whole society gains.

What is Produced?

The purpose of all the items in a school budget is to produce an invaluable product: an educated graduate. The school is a production center in every community. It produces the most vital product in the economy: human capital. Of course the school produces much more than a person prepared to work. Just as GNP data do not really capture the quality of life in a country, the totals of graduates from high schools do not mean only a number of people ready to enter the work force or college. Nonetheless, the schools do prepare students to work, though one educator recently commented that an examination of the standard curriculum reveals that most people who complete it would be prepared for just one kind of job: teaching at a university.

Business leaders are concerned that schools are not producing graduates who are prepared to work. That concern is especially serious in view of the increasing complexity of jobs. Consider the factors of production: natural resources, labor, physical capital, technology, and entrepreneurship. In 1930, when Whitehead advised foresight, more workers in the United States worked in manufacturing than in services. Most manufacturing jobs were repetitive tasks that required strength and careful attention but little decision-making. Today, in many factories the nature of the factors of production is very different. While many people assume that factory work has disappeared as a career, businesses have restructured the factories. In a report on education and work, Sue Berryman (1988) points to changes in the textile industry in the United States as a clear example of this restructuring, with important implications for the curriculum.

What has happened to skill requirements in the textile industry? In this industry, most jobs are machine operator jobs (lower skilled) or machine maintenance jobs (higher skilled). The ratio between the two is changing, from 4.2 operators to one technician in 1975 to 3.5 operators to one technician in 1985. For the operator jobs, technological innovation means that each particular task is easier. However, this narrow conception of skills is misleading; many operator jobs today are more demanding. ...Operators must now try to prevent machine stoppages -- "down time" is much more costly. This requires a broader understanding of the production process within which one operator works. It is no longer

enough for individuals just to understand the particular task to which they are assigned. Forward-looking firms are starting to consider how the operators could contribute to developing new styles and fabrics and technological changes.

The review of the textile industry points out that the technicians now also have more complex tasks, using complex manuals and envisioning relationships embedded in chips and circuits.

Just as manufacturing jobs are changing, so are the requirements for service workers, the area of the economy in which employment is increasing. While many service workers are visible at fast food restaurants just touching pictures on cash registers that tell them how much change to give, more service workers are involved in activities that require them to read, write, and think. In fact, the service worker and manufacturing worker have to use higher order thinking to deal with problems with the following characteristics: complexity; having multiple solutions (no one correct response); requiring nuanced judgment and interpretation; involving the application of multiple, sometimes conflicting criteria; involving uncertainty; requiring self-regulation (not directed by others); requiring the finding of structure in apparent disorder (Berryman, 1988). While those adjectives may sound like a description of the school budget manager's challenge, they represent a curricular challenge. Schools must prepare graduates to think if they are to work in most jobs that will be available in every sector of the economy in the future.

While many businesses are reeducating their employees to adapt to changing requirements, business leaders expect schools to prepare students to think. There are three reasons for a company's concern about the quality of schools as it decides on a location for a new plant or office complex. The corporation wants to provide access to good schools for the children of its employees. The firm also wants to have a local source of qualified workers. On a broader level, the corporations's management realizes that the quality of the local schools reflects and affects the quality of life in that community. Perhaps the most serious indictment of United State's schools has been the establishement of separate schools for the children of the executives of Japanese firms, though those executives are concerned that their children will not be able to rejoin the curriculum in Japanese schools which is much different from that in United State's schools.

Can graduates join the local economy productively? Can they and the businesses in which they will work compete in the world economy? Those questions are of central concern to the parents and business people who fund public education in the United States. Currently, the answers are negative. The push for reform is a consequence.

If there is a problem with a product of a private firm, that company can discontinue the product. Remember the Edsel. If there is a problem in the product of the school -- educated citizens -- the community cannot afford to shut down the production line. There must be a curriculum in place when students arrive at school.

How Is it Produced?

The school business manager does not confront the kind of challenge that would come to manager of a steel mill. The school district will not shut down; we cannot import an alternative product. Still, changes ahead for the educational system may be parallel to those that successful steel manufacturers continuing in business in the United States today have made. If the curriculum does not work effectively, as criticism indicates, then there is a problem in production -- in productivity.

A factory owner would look for problems in the quality of resources used, in the skills of the workers, in the kinds of technology, and other factors of production. The curriculum improvement team should look to the same kinds of sources of the productivity problem.

The school budget captures only part of the inputs in curriculum. Many of the inputs are intangible, such as parental involvement. Yet, most of those inputs can be influenced by the budget. For example, if an inventory is taken of all the materials, activities, and people involved in the education of the students, the level or absence of important factors can be identified. Once that base is clear, choices can be made about allocating more resources to increase the level of an input or to change the kind or quality of an input. Getting back to the parental involvement component, funds can be invested to increase that voluntary input through parent newsletters, an expanded parent education program, and even through the hiring of a school-community liaison worker. The business manager of a factory of a service industry firm would ask the following questions if given the challenge of improving a school's curriculum.

- What resources are being used now?
- What evidence is there of waste of resources?
- What evidence is there of duplication of work?
- What successful mdoels for improving productivity in this specific kind of situation are available?
- What specific characteristics of this situation would affect the introduction of those successful models?
- Which model is most appropriate for this situation?
- What staff development will be necessary to introduce this improvement?
- What support will be required to maintain this system?
- What systems for quality control can be built into the operation?

The questions in this list could be asked about a factory in the business of producing bicycles. It also could be used to identify the requirements for changing in the most vital production sector of the United States economy: the school. Other factors would influence a business decision, such as competition and economies of scale. Of course, a school involves much more than any business. Still, the principles of business management can focus the planning of curricular change on the basic elements that must be included in systematic reforms.

How Much Is To Be Produced

Once decisions about specific improvements are made, the budget

manager confronts the challenge of finding that extremely scarce resource, money, to pay for them. While society demands that schools improve their productivity, that society faces the same economic problem that every household faces: scarcity. There is only so much money.

School budget managers can make two significant kinds of contributions to the effort to solve that scarcity problem. First, they can look for ways to improve efficiency without additional funding. The following list of questions guides a search for such solutions.

- What kinds of after-school programs could be organized and sponsored by non-school agencies?
- What kinds of equipment and materials could corporations donate that would be put to effective use in systematic reform?
- What community agencies could work with parents to increase their skills as parents and their support of school progress?
- What community groups can provide support for school staffs?

It is not the school budget manager's job to answer those questions. Rather, the budget manager should challenge the school and community to respond to this challenge to find resources and to make systematic connections. Unfortunately, in many instances there has been no coordinated effort to build these non-school resources into the curriculum.

The second way the budget manager can contribute to the search for solutions to the limited funds challenge is to put together practical plans for using funds effectively. Corporate and governmental funding agencies have seen millions of dollars invested in educational improvements that disappeared. The agency representatives look much more skeptically at proposals now. The budget manager can initiate proposals for funding and also can guide the schools' proposal preparation to avoid problems. The following list includes criteria to use in organizing or evaluating a budget of school reform proposals.

- Is the project requesting funds for "business as usual" or some really innovative project?
- Is every cost necessary, or has someone "padded" the budget?
- Is evaluation built into the project so that if there is a problem it will be identified and dealt with before it seriously compromises the project?
- Is this project an investment -- that is, will it bring about a lasting change rather that just a temporary activity?
- Do the benefits justify the costs?

While there is no guarantee that having a proposal meet those standards will bring automatic funding, it is very likely that a proposal that does not meet those criteria will not be funded.

Developing Teachers' Human Capital

The product of a school is human capital -- the increased productive knowledge and skills of its students. The key factor in that product is the human capital of the teachers. It is the teachers who will put the new workbook, instructional approach, or other innovation into use.

The introduction of reform requires investment by teachers. It is their time and effort that makes a reform succeed or fail. Before a major

change in the curriculum takes place, the decision-makers must ask key questions.

- How do teachers view this change?
- What support is necessary for them to introduce the change?
- What recommendations do they have for making this change succeed?

The problem of scarcity in schools is clearly apparent in classrooms. The teacher has only so much time and energy. What support can enable that teacher to make progress? Perhaps it is clerical support that is needed. For example, in Chicago, the mastery learning program design required teachers to daily note progress for each student on a long list of specific skills. In some classrooms, teachers invested more time in recording a student's status than they did in personally assisting that student's progress. Without technical support, the program was not manageable. In a statement that recognized the curricular position of the teacher, the Carnegie Report advocated the view of the full-time teacher as a "manager of multiple resources." The teacher would coordinate support staff and volunteers, materials, and community resources to make the curriculum in a classroom more effective.

School systems, teacher's unions, and teachers themselves are reevaluating the position of the teacher. A professionalization of teaching is emerging as a priority for school districts. In a reform plan that may well serve as a model for urban schools, the Los Angeles School District has worked for two years on the creation of a "blueprint for progress," which makes 612 recommendations for improving the city's schools. After several more months of review, the district will begin to introduce these changes. The proposal includes a process for continuing involvement teachers in decision-making, recognizing that not only is curriculum not "teacher proof," but that curriculum improvement must include teachers' involvement in the reforms.

If the Carnegie proposal and similar redefinitions of the teachers' role take place, there is a very important question to ask. How well prepared are teachers to make curricular choices? This question is based on the premise that the teacher is most responsible for the curriculum. The teacher allocates the critical resources of time and energy every day. Without those inputs, no curricular plan can be realized. While schools of education in the United States are examining the preparation they provide for teachers, the curriculum is in the hands of the teachers who have graduated from those schools. What kinds of knowledge and skills do teachers need to make curricular choices? They need to know the methods and disciplines they studied in college. They also must be able to evaluate the curriculum, an ability that undergraduate courses do not develop.

Currently, most teacher's curricular decisions are ad hoc -- made with reference to a current situation, ranging from unexpected low scores on a test to an attractive model for teaching suggested by a colleague. As schools allocate funds to improve the curriculum, there won't be enough money to pay for all the materials and staff that are recommended. To take funds to support teacher in-service in curricular change means less funding for new materials and additional staff. The investment in

teachers' professional development, however, is critical to the long-term improvement of curriculum. No one program is going to bring about curricular renaissance. Better educated teachers will be able to make the current programs and future changes much more effective.

Trends and Development

Economic development means the increase in the productive capacity of an economy. If United States' schools become more productive, the economy as a whole will gain in productivity. Therefore, schools are of great concern to many individuals and groups. Unfortunately, some individuals and groups have brought about reductions in productivity because they did not examine their improvement plans before they introduced them. While the school budget manager may be seen as conservative if he or she asks serious questions about planned changes, that manager is the conservator of key resources and must be conservative to be responsible.

Consider, for example, the following misadventures in school improvement. In the 1970s, schools -- and publishers -- spent millions of dollars to introduce the metric system in the United States. Textbooks included metrics to meet the deadline. Teachers were told to teach with the metric system. They didn't and their students didn't learn it. Will it resurface? Probably not, but if it does, the planners who try to introduce it next time should study its failure in the 1970s before they invest much time and money.

Currently, most budget managers are trying to figure out how to buy more computers for schools. But how effective has the introduction of computers to the classroom been? "We rushed to put vast numbers of computers into the schools with very little curriculum, so we invented things to do with them that have very little to do with schools," a California educator recently commented. The introduction of the computer has succeeded in some individual schools, primarily schools with special support through staff resources and access to enough computers to provide them for many students. In other schools, though there are about 2 million computers in the nation's classrooms, access and use are limited. A national study for the National Science Foundation found that "the typical student spends no time working on a computer in a given week."

Before introducing any change into any area of the curriculum, whether it is a new math approach or a back to basics revision in many areas, the decision-makers must examine the entire program and look for ways to build this change into, not onto, the curriculum. More importantly, they must look to see that this change fits the priorities of the world into which the school's graduates go. To see this necessity, innovators need only look at the plans of the past that rearranged the curriculum but did not result in improved learning outcomes. In 1929, mathematics was being reformed, and the mathematician Alfred North Whitehead wrote the following criticism of that reform movement:

"A few years ago there was an outcry that school algebra was in need

of reform, but there was a general agreement that graphs would put everything right. So all sorts of things were extruded, and graphs were introduced. So far as I can see, with no sort of idea behind them, but just graphs. Personally I am an enthusiastic adherent of graphs. But I wonder whether as yet we have gained very much. Reformation must begin at the other end. First, you must make up your mind as to those quantitative aspects of the world which are simple enough to be introduced into general education; then a schedule of algebra should be framed which will about find its exemplification in the applications."

Implicit in Whitehead's critique are three questions that should be asked of any proposed change in the curriculum. First, what is the basis for this proposal? Second, how does this proposed change relate to the real world -- the situations in which the graduates will function and for which school is intended to prepare them? Third, has this plan been organized coherently?

Managing Schools' Futures

Current investments in education will shape the schools of the future. Probably the only sure prediction about school reform in the future is that society still will be challenging schools to improve well into the 21st century. The following statement was written about New York schools in 1892. "The Educational Department of our City is a beautiful instance of cumbersome machinery." Similar statements probably will be in New York newspapers in 2092.

How reform is viewed in the future depends greatly on the process by which schools make investments now. The school budget manager can guide the reform dialogue to focus on investment, to look at the long-term consequences of current allocations. While it may not be clear that in introducing metrics you may have less time to teach fractions, it is very clear that if you have to buy metric workbooks you will have less money to buy other materials. A decision made in planning next year's school budget is an investment decision. It is the kind of investment that has very long-term consequences. The more thoughtfully these current decisions are made, the more likely it is that the schools will meet their responsibility for the future.

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Chapter 12

The Computer Revolution and The School Business Administrator

A Revolution in Technology

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The school business official's professional life revolves around data: collecting, processing, storing, and retrieving data. The Computer Revolution has provided new tools to transform current thinking about data and its handling and use. In the 21st Century, how will computers change data processing methods? Will information have different purposes? What effect will computers have on daily business management operations? And most importantly, how will schools take advantage of the computer revolution to maximize the power of new technologies? This chapter presents a preview of electronic data processing in school business offices in the year 2001 and offers a plan to prepare for the future.

What Will Be: Data Processing in the 21st Century

Greater Network Capabilities

Three different types of information networks will become indispensable to business office operations: (1) remote area data processing, where microcomputers can only transmit information to and receive data from a host computer, usually a mainframe; (2) distributed data processing, with microcomputers capable of information exchange with the host computer and also independent manipulation of these data; and (3) local area networks, where microcomputers can exchange and massage data with any other computer in the network (Bahniuk, 1983; James, 1983).

Different purposes will dictate different networking arrangements. Remote area data processing will enable school districts to use on-site microcomputers to access national data banks when researching educa-

tional problems. Business offices will also use distributed data processing to interact with state or regional mainframes that contain cumulative data; in this scenario, a school district employee, using a microcomputer in the business office, can retrieve, manipulate, and store information in the off-site mainframe. Some national data banks of use to school districts will be the Educational Information Resource Center (ERIC) and the Library of Congress. Regional data banks will include those of educational computing consortia, whose services will be used by school districts for large data processing tasks, such as payroll and accounting. State agencies, such as departments of education, will require districts to submit required reports electronically; this will establish a wealth of demographic and financial information on a state-wide population.

Local area networks will be used for sending messages among school districts, either through the regional computing consortium as an intermediary or directly between computers in different districts using modems and phone lines. In addition to sending electronic mail, districts will also use micros and fax boards to transmit complete reports, including text and graphics, directly from the computer to a fax machine in a remote location. There will also be intra-district communication involving local area networks. Not only will microcomputers in the business office be linked to permit easier data access for office workers, but administrators will memo each other electronically. These networks will also be used to share computing resources, like high-quality fast laser printers; this will help conserve fiscal resources by eliminating the need for expensive printers in every office.

Electronic networks encourage centralization of data, with its inherent advantages and disadvantages. Required reports will become more standardized, permitting greater commonality of job tasks among school districts. This will aid those who change jobs by lessening unfamiliarity with practices unique to a particular district. Data reporting will become more efficient too: standardized templates need only be updated annually, eliminating re-typing of static data and/or re-calculation of formulas. Interdistrict comparisons will be facilitated by greater data centralization too. These macro-level analyses have a variety of uses in collective negotiations, fiscal decision-making, and public presentations.

Every innovation also brings disadvantages. Sharing information risks confidentiality. The 21st Century will see greater emphasis on data security, including using complex password schemes and discriminating access to information on a need-to-know basis. Finally, there will be some loss of creativity in performing information tasks due to the rigidity of data reporting; furthermore, state and perhaps even federal agencies may mandate the use of standardized operating systems and software.

More Creative Uses

While macro-level information reporting will inhibit creativity in some respects, micro-level data processing will become more imaginative. A business office microcomputer will retrieve data stored on an offsite mainframe to answer unusual questions of local interest or to customize reports for internal use in the school district. Microcomputers will also

be used to perform small in-house tasks on data unique to that district to aid decision-making and to enhance reports to the chief school officer, the board of trustees, the staff, and the public. Because it is easier to make changes and adjustments to a computerized document, business officials will be more inclined to experiment with new ways of data presentations. Computer creativity will also be enhanced by the natural progression of people on the learning curve. By the 21st century, most school business officials and clerks will be familiar with the basics of hardware and software operation. Their time will not be consumed in learning the rudiments of electronic data processing. They will have acquired the computing literacy and confidence to explore new ways of accomplishing old tasks.

Different Budgeting Techniques

Advanced computer use will also change the budgetary process and the content of the annual budget document. The preliminary budget will still be built using data gathered from various departments and school units; information transmittal may even be done electronically. However, computers will permit increased emphasis on data analysis and simulation, permitting better long-range planning and short-range projection of the tax levy and fund balance.

The content of the annual school budget may also change. Recurring computing expenses for consumables like phone utilities and supplies, may increase; however, other expenditure categories, like postage, may decrease. Moreover, the budget may include one-time investments for computer hardware and software, but increases in personnel costs will be minimized. Rather than incurring the expense of additional staff salaries to meet greater work loads, school business officials can bolster production by substituting capital for labor (Vaizey, 1972; Willet, Swanson, & Nelson, 1979).

Evidence of Computing Leadership

Classroom computers have traditionally been used to facilitate student learning with problem-solving, drill and practice, tutoring, simulations, and testing applications. However, teachers' use of spreadsheet, database, word processing, and graphing software is less common. The same often holds true for support services personnel--cafeteria manager, superintendent of buildings and grounds, and director of transportation. Because of its long-standing involvement with administrative computing, the business office may become the school district leader is encouraging and supporting administrative applications outside the central office. This may be evidenced by instructional workshops presented by business office personnel or "hot line" services for those having difficulties or questions.

How to Get There: Planning for the Future

Prior to the 1970s, only mainframe computers were available for electronic data processing. However, many districts lacked sufficient work

loads, financial strength, and trained personnel to purchase their own computing consortia for all their computing needs. Districts found the planning process for computerization easy under this arrangement: The consortium provided consultants who sold and implemented data processing services performed by its mainframe. School districts who purchased these services just chose the desired applications; the consortium did the rest.

School business officials have found that planning and implementing microcomputer systems is not as easy as obtaining consortium services. The very act of computer selection is overwhelming. Vendors eager to make a sale, advice from too many sources, and countless brands of hardware and software can confuse the buyer--and the purchasing decision is only the start (Graczyk & Kiser, 1986)! It is important to integrate the new computer system into daily business office operations to enhance work, rather than hinder it.

Most school business offices use microcomputers to some degree; however, to maximize the potential of these new tools, the computer system will need to be changed and upgraded. No amount of energy, information, nor materials will facilitate a successful system change without some kind of plan. This idea is supported by several authors. Hanson (1979, p. 293) listed a strategy of change, along with an understanding of appropriate technologies and external constraints, as crucial factors in successful change processes. Only by engaging in purposeful and directed activities can an organization accomplish reasonable goals and optimize both its outcomes and its relationship with the environment. Griffiths (1969, chpt. 6) stated that as long as consciously planned processes are used, system outputs tend to be rational, even if inputs are not.

A suggested plan for the selection and implementation of administrative computer systems follows. The model was developed from a detailed and comprehensive study which examined computer system design techniques found in the literature and refined through a survey of and interviews with 100 school districts throughout the nation nominated for their outstanding design or use of micro or mini computer systems. It contains concepts and practices that can guide business administrators in carrying out appropriate school district activities for adaptation and growth in response to the new technologies (Graczyk, 1986; Graczyk & Kiser, 1986). Planning in this way can help avoid initial mistakes and trial-and-error methods that cost time and money, leading to better use of the resources allocated to computer system development.

A Plan for Designing Micro and Mini Computer Systems for School Business Administration

Developing an Action Guide

To guide the entire design process, strategic plans should be developed first. These plans, meant to direct the remainder of the design activities, should use a systems approach and be macroscopoic in nature. Furthermore, plans should be followed in their original form, with only minor

modifications that may be necessary from time to time. Plans lack continuity--and cannot guide actions--if they are continually changed. This underscores the need for plans that are developed with thought and care during the early stages of the design process.

These strategic plans can be developed through a feasibility study. The results of this process will provide answers to three questions about a proposed, new computer system: (1) is it technically possible? (2) is it economically feasible? and (3) is it practical for the district?

The first step in the feasibility study is to establish a planning committee composed of representatives of all potential users of a computer system. The grass roots ideas generated and refined during committee meetings are invaluable for successful computer system design (Graczyk, 1986, p. 328). Although computers can be used as stand-alone devices, current technology permits greater electronic networking, which increases the number of users per system. Thus, today more than ever, involving users in the design process will help promote acceptance of a new computer system because users will feel a sense of ownership. Moreover, the input of those most likely to be affected by the changes can help ensure a macroscopic and comprehensive planning scope.

The major criteria for participation on the planning committee should be membership in a group of potential users of the computer system and knowledge of the school district and its administrative needs. The planning committee should consist of the school business administrator and representatives from the business office, the central office, and building administration. Including consultants is optional. A knowledgeable staff person or a consultant, sitting on the committee on either a full-time or an ad hoc basis, can provide expert advice on present computer technologies and future electronic trends. Care must be taken, however, when using consultants, because their input may overwhelm planners and blind them to what should be the primary concern--the needs of the district and the users.

The planning committee should not include students, members of the board of education or vendors. Students are not likely users of an administrative computer system. The same rationale applies to members of the school board. They seldom are direct users of a computer system. The board may receive financial reports generated by the computer system, but they are not the ones who will design these reports or know the data processing needs of the district. Furthermore, the proper role of a board of education is one of policymaking--and by extension, review and approval of the design plan submitted by the committee--not direct involvement in the design or implementation of a computer system. Vendors are also not good candidates for the planning committee; they may make recommendations based upon their own sales agenda, rather than the computing needs of the district. It may be best not to include the superintendent of schools as a regular member of the planning committee. He or she may not wish to participate because of time constraints. More importantly, though, the presence of the chief school officer may unduly influence the committee's decisions.

The planning committee should first undertake preliminary planning

activities, such as committee and meeting organization, securing the superintendent's support, providing awareness training for committee members, and writing assumptions and philosophies to direct future planning efforts. The committee should then assess data needs. This can be done through written surveys of and/or interviews with potential users, examination of existing systems and documents, and discussion by committee members. Current manual operations that require large amounts of paper, high clerical costs, repetitive functions, and dependency on bookkeeping machines point to computerized applications.

Based on these needs--and the assumptions and philosophies determined earlier--goals and objectives for a computer system can be developed. These will guide the development of specifications for choosing the components of the computer system. The selection criteria should be future-oriented to allow growth of the system and the evolution of technology.

Also, before writing the specifications, it is necessary to first determine the desired electronic configuration for the computer system: stand-alone units or some form of networking. Distributed data processing, which offers the advantages of centralized data storage and decentralized data processing, is a popular configuration for school business offices. Likewise, the question of standardization should be addressed. Using the same brand of hardware and software provides many advantages. Data transfer between work stations is easier, whether done electronically or manually through shared floppy disks. Also, each computer acts as a backup system, which is particularly important for applications such as payroll.

After these preliminary specification decisions are determined, specific selection criteria should be written first for software, then for hardware and peripherals, and finally for vendors. It is necessary to develop selection criteria for the computer program first because software is hardware-dependent.

The committee should next investigate offerings in the marketplace. This can be done through requests for proposals, reference checks, product observation, and trial use. Final selections can then be made of first software, then hardware and peripherals, and lastly vendors. Once selection of material inputs has been completed, a computer system budget can be developed, including both investment and recurring costs. Investment costs include:

1. Real capital costs for the initial implementation of the computer system, e.g., the price of the materials for the computer system--software, hardware, peripherals, computer furniture, and supplies--and tax, freight, and installation charges;
2. Implementation costs for physical site preparation and parallel runs;
3. Human resource costs for personnel expenditures that occur during the initial stages of computer system implementation, e.g., training programs, conversion of data from manual to electronic form, development of additional custom-made software, or consultant fees.

Recurring costs should also be included in the budget. These are

ongoing expenses for the computer system's daily operations, including staff salaries, consumable supplies, utilities, insurance, user update training, provisions for data backup, equipment depreciation, and computer maintenance and repair. There can also be other miscellaneous expenses, such as subscriptions to computing magazines or information services and membership dues to professional computing organizations.

It is also appropriate at this time for the committee to investigate funding sources to finance computer system acquisitions. Although money can come from the tax levy, federal or state aid, community action groups, or industry-education partnerships, most districts use local dollars budgeted in the general fund for business office expenditures.

The feasibility study is completed when the planning committee presents its findings to the superintendent, and, if appropriate, the board of education. The committee's report typically makes one of three recommendations: (1) termination of the project, (2) further investigation and study, and (3) acquisition and implementation of a computer system. If the planning committee recommends the last option, and the superintendent and the board approve, the committee can proceed.

Organizing the Computer System

The first step is to create a comprehensive and integrated system. A computer system is composed of many different parts or subsystems. Each subsystem is important, and neglect in developing tactical plans involving all the subsystems can lead to computer system failure. Forgetting about a particular subsystem through oversight can lead to weak links in the computer system chain.

To design a comprehensive computer system, the proposed subsystems should be identified. One common way to do this is to order the subsystems according to applications, such as personnel records, payroll functions, and accounting. Each subsystem can be further delineated: for example, the personnel subsystem can be divided into records for support staff and teaching staff.

While not all applications may be implemented immediately, it is important to identify them at this stage in the planning process to maximize the usefulness of the computer system. Also, each subsystem should be discrete and contain little overlap with other subsystems. This is to help ensure that future change in one subsystem causes only minimal disruption to other subsystems and the operations of the entire computer system.

Comprehensiveness is only one part of organizing the computer system. It is also important that all subsystems function together as an integrated unit, working in harmony with each other. In the above scenario, the personnel function would exchange information with the payroll department, which in turn would provide data to the accounting department.

Internal integration of computer system subsystems is not enough, however. A system does not operate in a vacuum but rather is part of its larger environment, the school district. Therefore, the entire computer

system must be externally integrated with other departments to maximize its benefits and minimize disruptions of school activities.

How can internal and external integration be accomplished? The first step should already have been accomplished by the planning committee: identification of the various computer system subsystems. The second step, which may have been accomplished in an informal manner during the feasibility study, is identification of those larger school district subsystems which will interface with the computer system. A computerized payroll system will affect various groups of people, such as the clerical users (those who input and process payroll data), administrators and board members (those who receive payroll reports), and all district employees (those who provide payroll information and receive checks). The third step involves constant communication. There should be communication between the computer system and other groups in the school district who will be affected in some way by it. This can eliminate isolation of the computer system, reduce alienation between users and nonusers, and make the computer system responsive to all the district's needs.

There should also be dialogue within the computer system. Every user should have basic knowledge of other applications and understand where he/she fits into the operations of the entire computer system.

Next, support and management functions should be centralized; these can include equipment maintenance and repair, purchasing, user training and support, and management and overall system coordination. The latter can be accomplished by designating a computer system coordinator who can facilitate computer system organization, implementation, and operation. Often, this individual is the business administrator.

Facilities to house the computer system should then be selected and prepared, with close attention given to the computer's operating requirements, e.g., climate control, adequate and appropriate electrical lines, a dust-reduced environment, and physical security devices. It is also important to accommodate the ergonomic needs of users. This means preparing computer rooms with sufficient storage space and adequate areas for displaying working documents, reducing eye strain (obtained by minimizing glare from light sources, properly positioning monitors, and providing aesthetically pleasing decor), and providing for physical comfort during computer use (accomplished with proper keyboard height, good chairs for back support, and adequate leg room). It is also appropriate at this time to develop a system of support to help users solve
their computing problems. This can be done through inhouse peer support groups, regional user groups, school district computing newsletters, and/or vendor support.

Maximizing Computer System Effectiveness

The first step in achieving effectiveness is to determine the nature and appearance of computer system outputs. These outputs should meet the needs of the district and reflect the goals and objectives formulated during the feasibility study. Design of the outputs can be guided by

discussions with users of the proposed system and later refined by pilot tests of preliminary versions.

Outputs can also be based upon current manual operations. However, using a computer system to simply translate manual into electronic applications fails to take advantage of the computer's power and capabilities. Planners can certainly use manual methods and reports as a basis for designing computerized outputs, but they should also use their imaginations to determine how these outputs can be improved by computerization (Graczyk, 1986, p. 430). Following output design, the nature and appearance of data inputs can be developed that will produce desired results.

It is also necessary at this stage to determine possible constraints to computer system effectiveness and obviate them. These include: physical security of the system; electronic security of data, which is a special problem for networked systems; software piracy; data inputs that are relevant, timely, accurate, and reliable; and adequate numbers of work stations.

Maximizing Computer System Efficiency

It is only at this point that the computer system can be made operational. First, however, an implementation plan for the computer system should be developed which includes a timetable for change and provides for initial orientation sessions to introduce the new computer system to users and to the school district community. To promote efficiency, user manuals and staff training should be provided prior to computer system implementation. User manuals should include not only technical documentation for operating hardware, software, and peripherals but also procedural documentation to aid daily operations. This latter type of documentation can include a general description of the computer system, organization charts, job descriptions, computer system goals and objectives, applicable policies and regulations, written procedures and procedure calendars, training materials, input and output forms, lists of available software, and reference materials. User training should also be conducted at this time. Ideally, training should take place during the regular work day at a site free from normal operations and distractions.

After the above procedures have been accomplished, the computer system can be made operational. It should be phased in gradually, one application at a time. Parallel runs of computerized applications should be conducted simultaneously with manual operations, abandoning manual operations only after computerized applications are working satisfactorily.

Evaluating the Computer System

Evaluation of the computer system is important to determine changes in its environment: the school district or larger technical, political, or social arenas. The rapid pace of product design may mean that a new computer system is technologically obsolete by the time it is operationalized. This does not mean that the system will not meet the needs for which it was designed. Rather, modifications to existing equipment may

increase the efficiency and/or effectiveness of the system. With new products appearing in the marketplace at a fast pace--and the desire of schools to take advantage of these new inventions--the concepts of evaluation and adaptation are taking on increased importance in the design process. Regular evaluation can also uncover small operating malfunctions before they disable the computer system.

The efficiency of computer system operations can be examined through process evaluations using ongoing logs of user problems, onsite observations, comparisons of the computer system against those in other school districts, and user surveys. The effectiveness of computer system outputs can be ascertained by querying users, comparing computerized reports to intended goals and objectives, and visiting other school districts to compare applications.

Evaluation results may indicate the need for adjustments to the computer system to prevent more serious problems. Some examples include expanded use of an application, modification of documents in the user manual, and equipment maintenance and repair. The latter is most easily performed by a technician retained on a service contract from a local computing consortium, computer repair shop, or vendor. Sometimes both an outside technician and a trained, school district employee are used, the employee performing minor repairs and the technician undertaking major work.

However, evaluation results may also point to major changes to be made to combat more serious operating problems. These can include expanding applications, upgrading the existing equipment, adding new hardware, software or peripherals, or increasing network capabilities.

To continue an iterative process of evaluation and planned, prescriptive action and to provide continuity for computer system growth and change, it is advisable to establish an ongoing planning committee. As the computer system ages, the committee may find it necessary to repeat the entire design process to help ensure orderly and purposeful change to and growth of the computer system through time.

Summary

Data processing in the business office will be different in the year 2001. Electronic networks will promote greater sharing of information. Microcomputers themselves will enable business officials to produce reports in new and exciting formats. There will be more widespread use of simulation and "what if" analyses, especially for budget development, financial management, and collective negotiations. The business office may also emerge as the leader in promoting computer use for instructional and support service management.

To bring the business office into the next century, careful planning is necessary to ensure an efficient and effective computer system--a computer system that is not only technically advanced but also responsive to the needs of the individual business office environment.

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Chapter 13

School Facilities Trends: Construction, Maintenance, Custodial Services, and Energy Management

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No one has the mental power to look into the future, nor is there a crystal ball in which one can predict what will take place. However, by analyzing events of the past, some outcomes may be predicted. This theory is particularly true of school facilities. (Earthman, 1984)

In the early 1970s, three interrelated phenomena occurred that affect the future of school facilities: increased competition for the tax dollar, student population decline, and the energy crisis.

Each of these contributed to a decline in the annual increase of revenue available to school systems. In many cases, school systems suffered actual budget revenue decreases from the previous year. This condition only slightly improved in the latter part of the 1980s. In fact, because of new pressures for services from the government, funding may continue to decline. Combined with other factors affecting school facilities, such as labor and land costs, school business officials in the 21st century will face an ongoing crisis of an aging infrastructure, with too little revenue to make substantial improvements.

50-Year-Old Buildings

One factor that will influence trends into the next century has to do with the age of existing buildings and their construction history. By the beginning of the 21st century, the school buildings that were constructed immediately after World War II will be more than 50 years old. This fact may not seem to be very influential, but one must realize that these buildings were built during a period of limited resources, building material shortages, and the need to house a rapidly expanding student

population. School systems in the 1940s and 1950s were virtually inundated with new students, and the main task of the school facilities staff of the local school system was to construct enough buildings to house the bludgeoning student population. Quality of construction material in many instances was secondary to getting the most square footage from the construction dollar. That same period of time was characterized by relatively inexpensive fuel costs. Because of this, the initial cost of the building was of prime importance and future costs of heating and cooling the building were secondary. As a result, many of these buildings were constructed with inefficient heating/cooling plants, creating a direct impact on present day maintenance costs. Therefore, the vast majority of school buildings constructed during this period of time are not considered quality schools. These are the structures, then, that will be reaching the mid-century age at the beginning of the new century.

Given the fact that over 95 percent of the school systems in the country will be trying to maintain the existing inventory of facilities, these school systems will face a rather significant dilemma regarding the disposition of these buildings. Basically, school systems that have buildings that are 50 years old must face the problem of modernization or replacement. When the building structure is not as good as what would be constructed today, and the cost of the modernization begins to approach the cost of replacement, some rather difficult decisions need to be made based upon many factors. The key to these types of decisions will be how to further the use of existing buildings in the most economical and prudent fashion. Of equal importance is the fact that school systems know these buildings will come to the point of serious review over the next 10-20 years. By planning now and anticipating these situations, rather than waiting for these situations to present themselves, better decisions can be identified and implemented.

School Enrollments

Changes in school enrollment population also create a trend which has an effect upon maintenance programs of the school systems. Demographers in the United States Bureau of Census seem to believe that the total population of the country will grow by 7 percent for the last decade in this century (U.S. Census Series, p-25). Additionally, demographers project that the school age population of the country will reach approximately 53 million individuals by the year 2000 A.D. This estimate is based upon the prediction that the school age population will increase by 5.8 million individuals during the 1990-2000 decade. To accommodate this increase in student population, the school systems of the country will need to construct approximately 266,000 new classroom units, assuming an average of twenty-five students per classroom for 90 percent of that population, and an average of ten students per classroom for the special education population. Consequently, housing this increase in student population could cost local school systems over 40.6 billion dollars in new construction money.

The impact of this capital expenditure together with approximately 91.4 billion dollars in finance charges means that over 132 billion dollars in public school funds will be devoted to housing the increase in student population that will occur in just one decade. Only five percent of the school systems of the country, however, will probably feel any significant impact. The vast majority of school systems will continue to experience either a decreasing or stable population. The student population growth and decline will have an effect upon the maintenance program of all schools, but perhaps in different ways.

In those school systems experiencing an increase in student population, costs for new student housing will have an impact upon the operations budget through an increase in the debt service section as a result of paying off the debt for new school buildings. In some systems, this impact may result in reduced funding for maintaining existing facilities.

In those school systems experiencing either a stable or declining student population, greater emphasis will be placed upon maintaining the existing inventory of school facilities. These school systems will not have to construct new facilities to house new students, but there will still be a need to occasionally replace an existing building due to structural or educational obsolescence. These stable environments will not place the type of continual strain on the school system's taxing ability common in districts experiencing rapid growth.

Some evidence of this condition might be had from the latest report of educational construction. The American School & University's 14th Annual Report indicated that the region of the country experiencing the greatest loss of population, the northeast, is spending the majority of its construction dollars on modernizing and retrofitting existing facilities (Abramson, 1988). On the other hand, those areas of the country experiencing the most growth, the south and west, are spending the least amount of their construction dollars for such projects. For example, the region containing the New England states spent 51 percent of construction dollars on modernization, 14.2 percent on additions to existing facilities and 34.8 percent on new facilities. In contrast, the region that contains the states of Arizona, California, Hawaii and Nevada, which are rapidly growing, spent only 15.5 percent on modernization projects, 26.3 percent on additions to existing facilities and 58.2 percent on new construction.

Maintenance Backlog

It is common knowledge that over the past two decades, school boards typically have not funded the maintenance section of the local operations budget to the level of need. Several significant factors contributed to this condition. Factors such as excessive energy prices in the early 1970s, state tax and expenditure limitation measures such as Proposition 13 in California and 2 1/2 in Massachusetts, the general aging of the school facilities inventory of the nation, high levels of wear and tear on buildings because of the type of clientele, population shifts and changes, and increased federal requirements for health and safety features have all

contributed heavily to this situation. In times of budget austerity, deferring maintenance projects is usually the easiest method of reducing the budget. No segment of the population organizes a protest to the local school board when such budget cuts are made. In fact, few people either in the school system or in the community are aware of the cuts and are not aware of the implications deferring these items have for the state of the buildings.

The extent of the maintenance backlog has been documented in a recent study of the deferred repair and renovation needs of the public schools. The report estimates that the accumulated cost to repair and upgrade the public elementary and secondary schools of the nation will amount to approximately $25 billion, according to a publication of the American Association of School Administrators. An updated cost estimate may well place the public schools figure at more than $30 billion today. This cost estimate may indeed be conservative because the California State Department of Education estimates that it will require a minimum of $1.9 billion (1980 dollars) to rehabilitate the existing backlog of 30-year-old facilities in that state. Additionally, the state will require $400 million each year thereafter to continue the program of upgrading existing facilities.

Huge backlogs of maintenance needs may well plague the school systems well into the 21st century unless serious thought, planning, and especially commitment to improving the structural infrastructure of the public schools is given to local maintenance needs.

Retrofitting Existing Buildings

As strange as it may seem, not every school building now in use has been completely retrofitted with energy conservation features. The big push to retrofit all schools with energy saving devices in the middle and late 1970s did produce effective results; however, the fact remains that not all buildings were completely retrofitted. According to one state department of education, there are still many retrofit projects that are sent forward for approval. Apparently, the need for continued effort to retrofit school buildings will exist well into the next century.

In this same vein, only the most modern schools are wired sufficiently to properly accommodate the electrical needs of the modern educational program. The proliferation of personal computers in the schools has placed a severe strain upon the electrical service of existing buildings. Most schools 10 or more years old will need to have the electrical service and distribution upgraded. The prospects are that the use of technology necessitating electrical service will increase and the demand to upgrade the schools will accelerate.

The use of computers has also required a dedicated space in the buildings. This has necessitated maintenance projects to carve out appropriate space to house the computers. These projects have usually been completed in-house by the maintenance department and funded under the operations budget. This program demand upon the maintenance section of the budget has required a reordering of the priority of items

contained in the maintenance projects list.

As the use of computers and other electrical devices increase, each school building will need to be renovated to accommodate this new technological learning methodology. Thus, for the remainder of the century, projects of this nature will continue to supercede the more mundane types of maintenance projects, and this action will contribute to the increasing backlog.

Long-Range Planning/Organizational Strategies

The uneven record of capital improvement planning in the local school systems has often contributed significantly to the backlog. As strange as it may seem, not every school organization has a systematic planning process to identify and complete capital improvements to buildings. This results in the lack of a capital improvement program that addresses the needs of the school system over a stated period of time.

Although the vast majority of the school systems have experienced an enrollment decline in the past and will continue that pattern in the foreseeable future, there are some school systems that will experience growth in the student population. Some school systems will experience rather rapid increases in student enrollments and not have the concomitant ability to raise funds to construct facilities to properly house the additional students. Several factors contribute to this situation, but the response to this dilemma is either double sessions for classes or establishing a year-round educational program. The Los Angeles Unified School District has found itself in this situation and has chosen to put the entire school system on a year-round program. ("Crowded School System," 1987) This response is also being chosen by other school systems that are facing large increases in student enrollments.

No one knows to what extent the year-round type of school organization will be utilized to cope with student increases, but the concept is being utilized to a greater extent than before. Experience with this type of school organization has already shown that a different type of maintenance program must be operated when the school buildings are utilized for 12 months. Not only must the configuration of maintenance staffing and project work be different, but the demand for maintenance work seems to increase under a year-round operation.

Although this type of organizational response to overcrowded conditions has never been universally popular nor long lasting, the times and social conditions of the next 10 years might be such that some school systems must consider year-round school operation as a long-term solution. Should this happen, the maintenance staffs of school systems using this approach may have to look to a reorganization of their efforts and work patterns.

New Facilities for New Programs

Several changes in the curriculum may well influence the maintenance needs, as well as the new construction needs, of each local school system well into the 21st century. For example, the trend is toward an

increase in graduation requirements for students, emphasis upon student assessment and remediation, and the effective use of technology in the schools. In addition, many education reports have recommended the extension of the school program to include the preschool population, especially the "at-risk" population. Expansion of either or both of these programs will affect existing facilities and require certain physical modification of the structure to accommodate them.

Initiating an organized pre-school program in each school building will create any number of maintenance projects that must be completed before the program is started. Priority for these types of maintenance needs may well precede those that deal with the structure itself. Putting off these maintenance projects is a form of deferred maintenance.

Financial Strategies

The trends in maintaining existing facilities indicate that school administrators will continue to have an exceedingly difficult job of maintaining buildings. The most difficult aspect of the present and the future is obtaining sufficient funding to do what is necessary to maintain facilities. What must be examined now are alternatives to the traditional method of funding maintenance projects.

Traditionally, the maintenance needs of the school system are funded through the annual operational budget. Financial relief for the school system in funding maintenance needs through this means, however, will continue to be limited in the future. There is nothing on the horizon that would indicate that the school systems of the country can raise $30 billion to complete existing maintenance needs and continue the present level of educational demands. Every prospect seems to indicate that a backlog of maintenance needs such as is in evidence in school systems today will be facing them well into the 21st century, unless drastic measures are taken to secure appropriate funding.

Because of the political and practical restrictions placed upon the local school budget, perhaps the best method of funding the existing maintenance backlog, as well as of meeting future needs, might be to shift either part or all of this particular burden to the state or federal level. One way to do this would be to create state or federal school building maintenance funds designed to finance the maintenance projects of the local school system. This fund could totally finance the backlog needs or the local school system could provide matching funds.

Besides the obvious benefit of having this part of the community infrastructure in good repair, there would be other benefits to such a financial plan. First of all, the greater taxing ability of either the state or federal governments would be utilized, rather than the limited taxing ability of the local school system which relies heavily upon the ad valorem tax, which in many cases is considered by some experts as regressive. Secondly, new jobs could be created on the local level by funding these projects. Lastly, local planners could be utilized to direct these projects, thereby strengthening that function of the school organization.

Are the prospects that such a fund will be created very bright? There

are several indicators that point to a strong possibility of funding on both state and federal levels. Several states that now require long-range planning on the part of the local school system are also beginning to fund large maintenance projects. These kinds of projects, for example, are included in the comprehensive 10-year plan submitted by local school systems to the Maryland State Department of Education. Developing such a fund on the state or federal level would depend upon political considerations. However, as the nation approaches the 21st century, the political climate may move in the direction of trying to upgrade the infrastructure of the nation. Of course, as the need for maintenance work increases, educators and citizens may exercise their choice to bring about sufficient political lobbying to effect passage of appropriate legislation to create this type of funding.

Public Authorities

Another funding alternative may be to create funding authorities specifically for large maintenance projects, or to re-direct the charge of existing state and local authorities to fund such projects. Although the public authority method of funding capital projects have traditionally been used by various governmental units to circumvent constitutional debt limits, such authorities could also fund maintenance projects by expanding their area of responsibility. (Camp,1983) The bonding power, plus the favorable interest rate usually obtained by these authorities, make this an attractive alternative.

Some people object to using bond funds to pay for projects that simply maintain the building in its present state, especially when the interest on the funds used to complete the project may range from 40 percent to 200 percent of the original cost. Under normal circumstances, these objections are valid and would represent prudent administrative concern. Indeed, it is not prudent practice to go into debt for projects like painting which does not last as long as it takes to pay off the debt. But funding major maintenance projects such as a new roof, boiler replacement, or re-wiring of the building through bonding could be justified, especially in light of the current backlog of needs.

Trends in Custodial Care

The World War II shortage of qualified workers for organizations outside of the war effort forced the public schools into some employment practices that caused problems for over a decade following the end of hostilities. Unqualified personnel were pressed into service to keep the schools open during the war period. In addition, little or no training was provided these employees and materials to work with were scarce. The buildings themselves were difficult to keep clean and operational because of their age and lack of attention to completing maintenance needs. As a result of these practices, the condition of public school buildings suffered greatly. Finally, often in concert with the manufacturers of the heating/cooling system, schools developed some rather advanced training pro-

grams. With better training in all aspects of cleaning and operating the building, the custodial staff was able to provide service that was commensurate with the demands of the newer buildings.

Increased Training Demands

The mutual relationship between greater sophistication of building systems and the increase in training of custodial staff has continued to the present. The custodian is no longer responsible only for cleaning up the school building. The custodian now has the responsibility of keeping a multi-million dollar facility operational. This type of job demand mandates a higher degree of training on the part of each building custodian. Many school systems now employ a person who has some engineering training or experience to be in charge of the building and to supervise a staff to ensure that the building is operational. The future will confirm and expand the development of job qualifications for the custodial staff.

Along with the requirement for improved qualifications of the custodial staff, the school system will have to offer better pay and working conditions. This response will mandate more funds for the operational section of the annual budget. Therefore, school administrators should be prepared to encounter these increased costs in future budgets.

Contractual Custodial Services

Some school systems have already experienced a sharp increase in the demand for funds for the custodial staff. In an effort to contain these budget increases, some school systems have explored the concept of contracting custodial services to outside vendors. Experience in this method of obtaining custodial services has indicated that public competitive bidding is less expensive than employing an in-house custodial staff. Contracting with outside vendors to provide custodial services is less expensive because the school system does not have to pay for fringe benefits which oftentimes amount to 25 percent of the employee's salary. Under the contract, the school system is provided with a trained and competent staff to clean the building. In many cases, however, the school system must still provide an engineer to keep the mechanical system of the building operational.

In spite of the economic benefit of vendor contracting for custodial services, there are some disadvantages associated with that method of cleaning the building. Some school systems which have had experience with this method of obtaining custodial services report that the teaching staff has some dissatisfaction with the plan. The dissatisfaction is usually not about the quality of the work performed, but the lack of communication between them and the people who do the cleaning. In most cases, teachers do not even see the cleaning employees because they work at night. Expectations of the custodial staff become blurred, and with no face-to-face communication, dissatisfaction with the service can occur.

When school system employees serve as the custodians, there is often more team spirit in evidence and a feeling of pride of ownership. School

system employees feel themselves a part of the entire school staff and perhaps provide more individualized attention to the needs of the users of the building without going through the formal requisition process. Although contract custodial services are usually more economical than employing custodians, the process is not viewed as being better by the recipients of the service because of the lack of a personal touch.

Energy Management

For the past two decades, educators in every sector of the country have been subjected to various predictions regarding the escalating costs of energy in the future. Regardless of the cost of energy or the state of availability of any source of energy, school administrators can at least feel reasonably certain that there will be a steady increase in energy costs over the next decade and into the next century. These increases will have an effect upon the budget that has already been decimated by limited resources. The problem arises when the energy cost increases outstrip the natural increase in resources available to the school system, and, as a result, energy costs demand a greater percentage of the budget than before. Good business sense, therefore, demands that school administrators, who administer one of the largest energy-consuming organizations in the local jurisdiction, do all that is possible to reduce the consumption of energy and reduce the overall budgetary impact that energy consumption has upon the educational budget.

With all of the conflicting promises, demands, and pressures, school administrators need to ferret out what is relevant to the educational enterprise and deal with those problems that confront the school system. There are three major aspects of the energy situation with which the administrator must deal at some time: (1) Energy Management and Control, (2) Retrofitting the Existing Facilities, and (3) Design of New Facilities.

Energy Monitoring Systems

School administrators will increasingly find themselves in a position to determine whether or not their school should implement an energy-saving system. Prudent administrators will investigate the field and determine the system that best fits the local schools long before the next energy crisis or increase in fuel price. Most of the applications so far have been in the larger school systems, but these systems will greatly help the small school organizations that do not have a large staff. By the time school systems enter the next century, these types of systems will be very commonplace.

Continued Retrofitting

The 10-year period of time between the first and second serious energy crises saw a great deal of retrofitting of schools to comply with

energy audit demands. Increased insulation was applied to all buildings, windows were caulked, boilers upgraded, and other energy conservation applications were made to existing buildings. All of the activity of this period of time would lead one to believe that every school building in the country was properly retrofitted into an energy efficient facility. Although the vast majority of buildings were made more energy efficient, not all facilities were retrofitted. School systems still have a backlog of buildings that need such an application. Retrofitting existing buildings for energy conservation will still be a large item for school systems for the rest of this century.

New School Design

The last major area of concern in energy conservation deals with the design of new school facilities. The responsibilities of administrators in this area should be well known. School business officials charged with overseeing the planning and design processes for new buildings must make certain that the architect incorporates the best energy conservation design features and systems into the plans for every capital project. This does not mean that administrators must be experts in all conservation measures, but they must be able to ask the right questions to ensure that the architect has done the proper job.

Summary

Trends in maintenance, custodial care and energy conservation, as in any other area of concern, are usually developed from an analysis of previous data. When one looks at the public schools during the last half of the 20th Century, there are some significant developments that may indicate trends which could continue into the 21st Century.

Since the 1970s, the public schools have had to compete fiercely with other local governmental agencies for the tax dollar. The restrictions on funding have caused, among other things, a severe backlog of school building maintenance projects that need to be completed. The overpowering burden of these projects, along with new demands for facility change, will be carried into the next century. Long term capital expenditure planning is and continues to be essential in addressing maintenance needs of public school systems. Through advanced planning and a combination of funding alternatives, the school systems of the country may be able to meet most of the needs to maintain this important part of the local infrastructure. These alternative funding sources include state and federal maintenance funds and the use of public building authorities.

The schools have witnessed the coming of age of the custodial staff in the last quarter century. Increased training and responsibility have accounted for greater professionalization of custodians. One promising practice which has proven to be successful in reducing the costs of custodial care is the contracting of this service to an outside vendor. In spite of the disadvantages of eliminating teacher interaction with custodians, this practice will probably increase in application in the future as

custodial costs continue to increase.

The energy crisis concerns of several decades have given way to serious energy conservation measures in existing and future schools. There is still a need to retrofit many existing schools to include energy conservation features. School buildings constructed since the late 1970s, however, have energy conservation features designed into them. Increasing energy costs will continue to claim a proportionate share of the school operational budget as fuel prices begin to increase at the end of the 20th Century.

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Chapter 14

Future Trends: Forecasting Methods

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The pace of change is accelerating and will continue to do so well into the foreseeable future. Estimates, for example, indicate that more than half of the knowledge accumulated during the entire course of human history came about during the past 25 years. This newly acquired knowledge has raised hopes, spawned futuristic technologies, and created problems so critical that they threaten the very existence of the human race.

To mark the Golden Anniversary of *U.S. News and World Report*, the editors published a special issue probing the future. "What the Next 50 Years Will Bring?" described what the world will be like in the year 2033 according to the views of hundreds of experts from a variety of fields. Some of the more interesting predictions are highlighted in the following excerpt:

> People will live to a healthy old age of 100 or more, as superdrugs cure diseases such as cancer and senility. Genetic techniques will expand food production and curb pollution. Space colonies will orbit the earth, and the moon will be mined for its wealth. Robots will do household and factory chores, and cars will be programmed to avoid accidents... Floating cities will house thousands of people. Levitating trains will travel at 250 miles an hour... Today's superpowers will be challenged by Third World Nations that will claim 85 percent of the planet's population by 2033. These poorer nations will desperately seek a greater share of the world's bounty. Economics will be tomorrow's *lingua franca* as international trade links countries more closely together.

When school business officials read about such fantastic predictions for a world of the future, they may be tempted to ask, "How can we know what the world will be like in 50 years, or even next year for that matter?" Because many predictions seem so outlandish and distant from current reality, business managers may be just as likely to dismiss them as folly, and silently curse such foolish dreamers.

One thing in life that is certain is change. Whether we like it or not, the world will be a very different place in 50 years. Not only will the world be altered, but the accelerated pace of change will also make it even more difficult for school business officials to make accurate predictions about the future.

Nevertheless, just because predicting the future is fraught with peril, educational leaders such as school business managers should still try to make predictions. The only thing worse than erroneous predictions is an absence of predictions. Any prediction, whether accurate or inaccurate, provides a peg on which to hang future planning efforts. Absence of predictions dooms schools to wallow in the mire of our current problems and difficulties with absolutely no hope of influencing the future.

The success of any enterprise -- educational, business, military, or otherwise -- depends to some extent on the ability to anticipate the future accurately. The greatest gains come from exploiting opportunities, not solving problems. If, for example, school business officials have a good idea of what to expect in terms of both future opportunities and problems, they may take advantage of opportunities while systematically programming the problems away. Failure to anticipate the future can leave a school district bound up in solving yesterday's problems tomorrow rather than tomorrow's problems today.

Although business officials can't know the exact events and circumstances of the future, they can be assured that the future will be comprised of two kinds of circumstances and occurrences. There will be circumstances and events they wish they could avoid, such as wars, high unemployment, famine, and mass ignorance. There will also be events and circumstances they would like to have occur, such as peace, full employment, freedom from want, and the eradication of illiteracy.

While educators may not be able to control external events and circumstances directly, they may be able to control internal events and circumstances such as the configuration of the organizational structure, the nature and number of programs, and the allocation of resources. Although success ultimately depends on both external and internal factors, the ability to anticipate future external events and circumstances while monitoring and adjusting internal events and circumstances certainly enhances the chances for a happy ending.

Why Forecasting is Important

Most people are amused, or more likely exasperated, when the bright sunny weekend forecast on the six o'clock news turned into the rainiest deluge of the summer. When this occurs, a poor weather forecaster often becomes the focus of jokes.

For the most part, however, weather forecasts are extremely accurate and are becoming more so all the time. To hedge their bets in the face of some degree of uncertainty, modern weather forecasters often quantify the chances of a particular event occurring. For example, forecasts commonly speak of "a 50 percent chance of rain," or "a 30 percent chance of snow flurries."

The important thing to remember is that a weather forecast is not a prophecy, but a forecast. In the strictest sense, a prophecy is a statement of what will occur, while a forecast is a statement of what can occur given a certain set of conditions. If the conditions change, then the forecast will change as well.

This is precisely why forecasting is such a valuable tool for planners, particularly school business officials. Forecasting is a systematic methodology for determining a range of future possibilities beyond mere speculation. Forecasts, if carefully done, can yield reproducible and consistent results and give school business officials the means to intervene in shaping the future.

According to the book, *Futurism in Education*, forecasting can be defined as:

> ... a system of quantified estimates of change and alternatives; that is a prediction of the timing, character, and degree of change of the parameters or attributes associated with the design, evolution or process of something according to a specified system of reasoning.

Forecasts allow school officials to suspend the present while exploring images of some of the possible futures. Furthermore, forecasts establish visible trends and alternatives and lead decision makers to choices from a myriad of available alternatives. Such futuristic thinking can be the key to avoiding reactive, bandage management with its unavoidable penchant for fire-fighting by encouraging opportunistic, goal-directed school management.

Forecasting, then, is a term that describes a set of techniques that can be used to penetrate the veil of uncertainty masking the future and allow school business officials to attempt at least a fleeting glance of the range of external events and circumstances likely to shape the future.

Best Forecasting Methods

If forecasting is to be useful to school business officials, due care must be given to obtaining the most accurate forecasts possible. The following guidelines should prove helpful to those who seek to improve the accuracy of forecasts:

- Use more than one method to increase the chances of successful forecasts.
- Use several different groups with the same method to provide a cross-check and improve reliability.
- Involve persons from different fields of expertise to improve forecasts (discoveries/innovations in one field often impact on other fields).

- Oversee the accuracy of data inputs to ensure accuracy of forecasts.
- Extend the necessary effort to obtain a complete and accurate data that will have a definite bearing on the completeness and accuracy of forecasts.
- Remember that the probability of errors in planning without forecast is much greater than probability of errors due to wrong forecasts.

Situations calling for forecasts vary widely in terms of factors such as time frames, availability of data, and the kinds of outcomes desired. A number of forecasting techniques have been developed to deal with such diverse situations. Generally, these techniques fall in two broad categories: qualitative and quantitative methods. Qualitative methods can be further subdivided into subjective assessment methods, exploratory methods, and normative methods. Quantitative methods include time-series methods and explanatory or causal methods.

Quantitative forecasting methods have found their greatest applicability in the fields of business and economics, areas where there tends to be a wealth of quantitative historical data available. Quantitative methods are useful if the following conditions exist:

- Information about the past is available in sufficient quantity/quality.
- This information exists as numerical data or can be put in this form.
- It can reasonably be assumed that some aspects of the past pattern will continue into the future.

Qualitative forecasting, on the other hand, has enjoyed wider application because, in the absence of substantial quantitative data, qualitative methods have been the best available means to get at significant future concerns. This has contributed to the popularity of qualitative forecasting as a means to shaping policy in a sociological context.

Although many quantitative techniques also have applications to the educational enterprise, a discussion of the usefulness of qualitative forecasting techniques for educational planning may be the most useful in an arena that is changing so rapidly that quantitative analysis based on past trends is often suspect. Qualitative analysis, on the other hand, allows greater use of non-historical analysis and, therefore, may be of increasing value to school business officials.

Qualitative Forecasting Methods

Qualitative forecasting methods involve probing the minds of experts in their respective areas of specialization to get their views of the future. Many times these "experts" are requested to predict the most important future breakthrough along with likely dates and the probability of occurrence. Sometimes the experts are requested to make predictions across a wide range of fields such as medicine, economics, education, politics, and others, and to identify the major problems and opportunities that are likely to emerge in these fields. The logic behind using experts to predict the future is that these people are likely to have a rough picture of the future already because they have an awareness of the obstacles, opportunities, and magnitude of effort being directed in their particular areas of expertise.

When qualitative forecasting techniques are used, the expert becomes the processor of facts, knowledge, and information rather than some mathematical formula or model as is true when using quantitative methods. Therefore, qualitative forecasting requires a good deal of knowledge, foresight, and judgment combined with creativity, if methods are to be adapted effectively to situations.

The forecasting methods discussed here illustrate the wide range of qualitative forecasting techniques available for use in special circumstances. School business officials may want to check the references at the end of this chapter for more detailed information on forecasting methodology, both quantitative and qualitative.

Expert Committees

The use of expert committees or panels is one of the simplest and most widely used approaches to forecasting. In its most basic form, this approach involves a selected group of experts sitting around a table and deciding as a group what their best estimate is for a particular item to be forecast. For example, a group of experts in finance may be asked to predict the most significant changes that will come about during the next 25 years in tax bases and revenue sources used to fund education.

Sometimes the committee or panel may be composed of experts from different disciplines such as education, politics, business, banking, and so forth. This approach encourages a collective decision based on the combined breadth of experience of all the experts. The interaction that results from mixing experts from different disciplines can encourage creative thinking because breakthroughs in one field many times have applications to other fields. For example, computer technology has had a tremendous impact on many disciplines, including instruction, transportation, fiscal control, and personnel management.

Some of the advantages of expert committees include:

- Numerous ideas are generated.
- Creativity tends to be high because of the cross fertilization encouraged by the interaction of group members.
- Forecasts can be obtained quickly and easily.

Disadvantages exist as well. They include:

- Views of persons who are reserved by nature may be suppressed, while less-informed, but more vocal group members, may dominate.
- Extreme views may be eliminated from consideration in order to reach group consensus.
- Views of persons who are perceived as having higher status in the group may receive favored treatment over the views of lower-status group members.
- Personality conflicts among group members may deter the group from accomplishing its task.

Nominal Group Approach

The nominal group technique differs substantially from the traditional committee approach in that discussion is tightly structured. Although

group members work in each other's presence, much of the work is done independently. As with the committee approach, the nominal group may be homogeneous, composed of members with similar backgrounds and expertise, or heterogeneous, composed of members with divergent areas of expertise. Heterogeneous groups tend to exhibit more creativity but also pose more problems in terms of interpersonal differences and communications.

The nominal group technique is relatively simple, but because it runs counter to the experiences of most people while working in groups, the process must be followed closely. The nominal group process begins with a problem being proposed to the group. For example, the group may be asked to describe the most prominent physical features of an elementary school facility 25 years from now. Once the problem has been made clear to the group, the following sequence of activities occurs:

1. *Silent Generation of Ideas* -- Each group member individually writes several ideas on a piece of paper. Ideas should be expressed in brief phrases or statements. There is no discussion or sharing of ideas among group members at this point.
2. *Round-Robin Recording of Ideas* -- Each group member presents one idea in turn and the ideas are recorded by the group leader on newsprint or a blackboard so that everyone can see the entire list of ideas generated. This process continues until all ideas have been presented. Duplications are eliminated and group members who have no new ideas may pass. No discussion of individual ideas is allowed at this time.
3. *Serial Discussion for Clarification* -- Each idea that has been generated is discussed in order to clarify its meaning. Arguments are not allowed because decisions will be later determined by ballot. The purpose of this step is to ensure that ideas are clear to all group members.
4. *Preliminary Vote on Importance* -- Each group member is requested to select the most important items (three to six) from the list and write each item on a small piece of paper along with a number indicating the rank order of importance for each individual item. The votes are collected by the group leader and tallied on the master list.
5. *Discussion of Preliminary Vote* -- The results of the initial vote are discussed by the group and any additional clarifications considered. There is no attempt to reach consensus, only an attempt to understand why some items were considered more important than others.
6. *Final Vote* -- Step four is repeated. The items that received the highest composite rankings are accepted as the group decision.

Again, this method has several advantages:

- The active participation of all group members is encouraged.
- Group dominance by high status, aggressive, or articulate members is reduced.
- The tendency of a group to focus prematurely on solutions is avoided.
- Written records help to insure that good ideas will not be lost.
- Discussion restricted to clarifying ideas helps eliminate conflict and thereby promotes group efficiency.

Unfortunately, no decision-making system is perfect, and this one also has disadvantages:

- The rigid structure of the nominal group technique reduces to some extent the possibility for extensive cross-fertilization of ideas.
- Creativity arising out of conflict is curtailed.

Formal Surveys

Surveys provide a means to gather maximum information from a sample representative of a broad population at a minimal cost. A sample of a subject population is selected to survey based on the purpose of the survey, as well as time and cost limitations. As an example, a random number of school business managers might be surveyed and asked to list the 15 technical innovations that will experience growth in the business functions over the next 20 years. Survey results are tabulated and analyzed to assess the characteristics of the subject population in relation to various issues being considered. A carefully designed and conducted survey may allow generalizations across an entire population.

Some of the advantages include:

- A great deal of information can be gathered at a minimal cost.
- The characteristics of an entire population can be generalized if procedures are carefully followed.
- Anonymity of respondents can be guaranteed, encouraging more candid responses.

Disadvantages include:

- Flaws in the survey design or instrumentation used can lead to erroneous inferences.
- Return of mailed questionnaires tends to be low, causing difficulty in generating inferences.
- Highly structured surveys are not particularly useful in generating creative responses. Participants' responses are bound by the form and format of the survey instruments used.

Delphi Technique

In many respects, the Delphi technique is similar to the nominal group approach, except that it does not require the physical presence of group members. Group members, in fact, never meet face to face but are allowed to focus on issues and, in a sense, even debate issues anonymously. The study is typically conducted by mail through a series of questionnaires.

The following is a typical example of how the Delphi technique might be used to forecast some future events or circumstances:

1. *A problem(s) is/are identified as the basis for the study.* For example, it may be desirable to find out how experts feel the role of the school business manager is likely to shift during the next 10 or 20 years.
2. *Questionnaires are then developed* (with or without a data base)

and sent to a selected group of experts who are requested to predict major changes, along with a likely date of occurrence and the probability that such an event will take place.

3. *Each selected expert completes and returns the questionnaire.*

4. *The results from the first round of questionnaires are analyzed,* compiled (usually in a statistical format), reproduced, and recirculated to all those responding to the initial questionnaire.

5. *The experts review the results of the first round and again state their opinions in regard to the original questions.* They are free to agree with the majority opinions expressed in the compilation of results from the first round or to disagree. If they disagree, they may be asked to give their reasoning.

6. *The questionnaires are again collected, analyzed, compiled, reproduced, and recirculated as in step 4.*

7. *Steps 5 and 6 are repeated as many times as necessary to reach a high level of consensus.*

8. *The final results are then reported to all participants.*

Some of the advantages of the Delphi technique include:

- Participants are not inhibited by face-to-face contact with other group members, resulting in the generation of many creative solutions.
- Individual members are protected from undue influences of others.
- The Delphi technique is not limited by geographic boundaries. Participants may be recruited from a world-wide pool of expertise.
- The Delphi technique permits the participation on an equal basis of a large heterogeneous group of experts.
- Because participants are not restricted by scheduled meetings, more may be inclined to participate.

Disadvantages include:

- The Delphi technique can be extremely time consuming, negating its usefulness if quick decisions are required.
- Alternatives that may surface during face-to-face interaction are lost.
- If a large participant group is used, the process becomes very expensive in terms of time required for compilation, costs for reproduction and distribution of results, and mailing expenses.
- Difficulties may arise in securing the necessary participant interest and commitment to assure the quantity and quality of responses needed through each successive round of questionnaires.

Scenario Writing

A scenario is a narrative forecast of the future of a system. The technique was introduced in the book, *The Year 2000: A Framework for Speculation on the Next 33 Years*, in 1967 to probe into surprise-free futures. Scenarios are developed from a description of present conditions and a forecast of how those conditions will be altered in the future. Forecasts are based on a consideration of external constraints to change, and interactions between system variables in the progression from current conditions to some future conditions.

Both pessimistic and optimistic forecasts may be useful. A pessimistic forecast (scenario) may, for example, shock people to action in order to avoid a future crisis. On the other hand, an optimistic forecast can raise the hopes and expectations of a despondent population and spur people to exert greater effort and sacrifice more in order to realize a brighter future. A good forecast may not be one that is entirely accurate, but the one that stimulates the proper response in people and helps to shape the future positively. This can be accomplished by linking a desirable scenario with action imperatives in a comprehensive plan.

The Seth-Harva method of scenario building is an example of how scenario building can be used to produce forecasts for future planning for school business officials. The steps in this method include:

1. A survey of the present state of education in the school district is conducted. Educational indicators such as numbers enrolled, literacy rates, achievement test scores, expenditures per student, quality and qualifications of the teaching force, drop-out rates, and so forth are gathered and analyzed.

2. A trend scenario is developed based on the data generated in Step 1. The trend scenario tries to predict the state of affairs in the district 20 or 25 years in the future by anticipating several possible crisis points and several possible accomplishments.

3. The future of the district is envisioned as the forecasters would prefer it to emerge in 20 or 25 years. For example, the group may envision a district with 100 percent literacy, no dropouts, stable financial base, functional facilities, and full support of all aspects of the community.

4. The group develops a preferred future for the educational system based on the futuristic vision described above.

5. An action plan is developed based on the preferred future scenario. The action plan is composed of policy decisions that, if implemented, may bring about the desired future for education.

Some of this method's advantages are:

- Scenarios can call attention to the wide range of future possibilities that exist.
- The interactions of diverse societal dimensions such as educational, political, economic, cultural, military, and psychological are illustrated in a way that can be especially useful for policy decisions.
- Scenarios can inspire people to exert greater efforts to attain desirable future states and avoid undesirable future states.

Some of the disadvantages include:

- The accuracy of scenarios is always suspect and may ultimately depend on the biases and opinions of a small group of experts with special interests to promote.
- It is extremely difficult to estimate the results of interactions over a diverse array of social dimensions such as political, military, economic, and so forth.
- Overly optimistic scenarios may raise expectations too high, while

overly pessimistic scenarios may dash hopes and produce feelings of helplessness and despair.

Morphological Analysis

This approach assumes that tasks or problems are divisible into discreet parts or elements. For example, literacy rates and numbers of dropouts may be elements of a broader problem related to retention policies in schools. "Attributes" describe the condition of each part or element of the problem. For example, on a scale ranging from "low" to "high" regarding demand for math teachers, the district may score its "attribute" as "critical."

Table 1
Elements and Attributes of the Future Demand for Mathematics Teachers

Elements	Attributes				
Demand for Mathematics Teachers	Low	Moderate	High		
Level of Schooling Where Need Exists	Elementary	Middle	Secondary	Tertiary	
Geographic Region Where Need Exists	Southeast	Southwest	Northeast	Midwest	West
Anticipated Growth in Demand	Zero Growth	Slow Growth	Moderate Growth	High Growth	
Possible Sources of Teachers	Teacher colleges	Other colleges & univ.	Business and Industry	Government	Non-working population	Other teaching fields

Morphological analysis can be applied to forecasting in the following way:

1. A problem is defined -- A shortage of qualified mathematics teachers in the future is defined as a problem.

2. Elements and attributes of the problem are identified -- The problem is considered as stated and key elements and their attributes are identified. The demand for mathematics teachers, the level of schooling where the demand will exist, and the primary sources of teachers are

examples of problem elements; low, moderate, and high are examples of attributes of the demand for teachers.

3. Elements and attributes are listed in a chart or table -- The elements and attributes are organized in a chart or table as illustrated in Table 1. Each row in the table consists of a single element together with its attributes. There are as many rows as there are elements of the problem identified.

4. Alternatives are synthesized -- One attribute from each element row is selected and these are combined to suggest a particular alternative scenario. All such possible combinations are considered. The feasible alternatives are retained for further consideration while those that are illogical are discarded.

In the example in Table 1, a possible alternative is sketched. The demand for mathematics teachers is currently moderate at the middle school level in the Southwest. High future growth in demand is anticipated, and business and industry is identified as a possible source of mathematics teachers.

This particular scenario suggests several possibilities. One possibility is that business and industry could in fact be a good potential source for future middle school mathematics teachers in the Southwest. A second possibility is that business and industry is comparatively limited in the region, so much so that it would be better to consider other sources. A third possibility might be that business and industry in another section of the country could be tapped for mathematics teachers because of prevailing conditions of falling school enrollments coupled with declining industrial demand leading to plant closings.

Some advantages include:

- An extremely large number of possible solutions is generated.
- The methodical approach to generating solutions makes it unlikely that solutions will be overlooked.
- Premature selection of solutions is avoided because biases and prejudices are held in check by the systematic generation of solutions.

Among the disadvantages are:

- Complex problems lead to large numbers of elements and attributes causing unwieldy numbers of solutions to be generated.
- If key elements to a problem are overlooked, then the resulting solutions generated as a result of the analysis may not be valid.

Monitoring

The technique of monitoring to forecast the future involves searching or scanning the literature for signals that herald significant technological, social, or other innovations in advance of their actual arrival. Newspapers, magazines, journals, books, patent records, films, and so forth are reviewed over time and trends are carefully noted. In this manner it is possible to determine trends that are growing and declining and predict where these trends will lead in the future. John Naisbitt used this technique as the basis for his book *Megatrends*, predicting the 10

major trends that will influence life in the United States during the intermediate future.

One advantage definitely exists:

- Monitoring provides a data-based approach to forecasting in that trends and innovations are documented and this documentation provides a relatively sound basis for projecting the future in a limited context.

Two disadvantages are:

- Monitoring is expensive, requiring considerable time and resources.
- Forecasts obtained as a result of monitoring may have limited use in highly developed countries. Innovations may arrive almost simultaneously with the forecast.

Planning for 2001

Frequently, there is a time lag between the awareness of an impending event and the actual arrival of the event. This time lag, or lead time, is the main reason for planning and forecasting. In the educational enterprise, there tends to be significant lead time. For example, five years pass between the time children are born and the time they enter school for the first time. As a further example, more than 20 years are required for the educational enterprise to produce a doctor. If significant changes are in store in terms of training individuals to enter the medical profession during the next 20 years, there is a need for planning for those changes more than 20 years in advance.

Human beings have always had a strong desire to know what lies ahead. For most, uncertainty about the future has generally been worse than reality. Perhaps that is the reason for the enduring popularity of fortune tellers down through the ages.

In a sense, forecasting is much better than fortune telling. While a fortune teller is limited to prophesying what will be, a forecaster has the freedom of showing what can be. Forecasting is a systematic attempt to shape the future rather than simply allowing the future to unfold randomly, bringing with it an uncontrolled quota of joy and misery. Forecasting seeks to manage the future in such a way that joy is maximized and misery is minimized.

In the future, great change is a certainty. Education can be very effective in helping to insure that changes develop for the benefit of mankind. But the educational enterprise will not develop in isolation. It will be shaped by a host of cultural, political, economic, and technological changes. Educational leaders, including school business officials, have a solemn duty to do all in their power to peer into the future and estimate the forces of change. Only in this way can the educational enterprise make a maximum contribution to the quality of life for all human beings.

School officials of 2001 must begin today to predict the future of their school system. The qualitative methods presented in this chapter are offered as a means of help in carrying out that awesome responsibility.

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Conclusion

The Challenge to Change

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What does the future hold for school business management? No one knows for sure. Nobel Laureate Milton Friedman once quipped: "Prediction is difficult business especially if it's about the future." But, as one of the contributors to this book has suggested, our task here has been not so much to predict as to forecast, to develop realistic scenarios now about what the future might hold for school business managers, the better to prepare for and even to shape it.

Nearly every chapter in this book describes major changes that will affect schools in general and school business officials in particular. Clearly, the day is ending when "planning," "budgeting," and "supervising" adequately define the work of the school business manager. Thus, our contributors describe the school business official variously:

Chief Information Officer
Strategic Planner
Entrepreneur/Intratreneur
Human Resource Manager
Professional Team Member
Restaurateur
Purchasing Agent
Head of Marketing

Role and task changes of the magnitude described by the authors will not come easily. With apologies to Friedman, it could be said: "Change is difficult business, especially if it's about me." In much the same way that everyone has a different threshold for pain, so also does everyone have a different reaction to change. Most school leaders can identify and place employees on a spectrum ranging from "adaptable" to "intransi-

gent." The question is where are we on that change spectrum?

People resist change for many reasons, not the least of which is that they believe in what they are already doing. In other words, the way we are doing things now probably represents our best personal and professional judgment about how to discharge our responsibilities. Thus, it is easy to regard change proposals as indictments of our past efforts. Regrettably, where change has been improperly introduced, some individuals have been made to doubt the efficacy of their entire careers. In those circumstances, both the individual employee and the school district are diminished.

In the book, Transformational Leadership, the authors identify three interrelated sets of reasons why people resist change: technical, political, and cultural.

Technical Reasons -- Among the technical reasons people give to avoid change are habit and inertia, or the "we've-always-done-it-this-way" combined with the if-it-ain't-broke-don't fix-it syndrome. "Fear of the unknown" and loss of organizational predictability also discourage employees from entering wholeheartedly into a change process. We all like to know exactly what to do and to whom to report. Change runs counter to our set routines and upsets our accustomed lines of authority and communication. Change often requires people to step out of their traditional roles in the school district. And, for a while at least, ambiguous jurisdictions, confusion, and conflict accompany the change process. Finally, "sunk" cost, monies already spent on the old ways of doing things, is used as an excuse to avoid the new and unfamiliar.

Political Reasons -- Schools can be as political as any other organization. Changes, like those recommended by our contributors, can threaten powerful coalitions within and outside the school district. Again, in the political vein, changes are sometimes resisted because they are seen as indictments of past leadership. Administrators can find it difficult to admit that a decision made, say, only one year ago needs now to be reversed.

Cultural Reasons -- Simply put, some schools systems lack the climate for change. Given a choice between the old and the new, these school communities will opt for the old. In sociological terms, these are the traditional so-called sacred communities where "new" is anathema. To be fair, however, what organization doesn't harbor a longing to regress to some version of "the good old days."

What kinds of things must be done to effect lasting change?

Large-scale organizational change includes key elements: pattern breaking, experimenting, visioning, and bonding and attunement.

For school business officials, pattern breaking involves freeing the school system from structures, processes, or functions that are no longer effective or necessary. Business-as-usual attitudes will not accomplish the challenging agenda our authors have set for the schools of the 21st century.

Once new ideas have been accepted, school districts will need to experiment -- perhaps on a small scale -- with some of the changes proposed. Change needs to be tried on for size. Tailoring innovation to

adapt to local conditions is a necessary step requiring sharp judgment calls of school business officials and other administrative team members.

Visioning, while it may sound poetic, is a very practical process involving development of 1.) a crisp definition of the purposes and expected outcomes of the change proposal and 2.) a strategic plan to operationalize the entire change process. Educational administration literature typically casts principals and superintendents in the role of "visionary" and "keeper of the flame." Increasingly, school business managers are expected to fill these roles as well.

Bonding and attunement refer to all those leadership activities that encourage school employees to align their goals with those of the school district. School business managers need to find ways to give employees a sense of involvement, pride, even ownership in the school operations. This means sharing information and creating opportunities for significant involvement with decision making. Like members of other organizations, school people want "a fraction of the action."

An adaptation of Naisbitt and Aburdene's advice to twenty-first century managers forms a fitting conclusion to this book. Policymakers in the future will need to consider the following guidelines:

- The best and brightest people will gravitate toward those districts that foster personal growth.
- The manager's new role is that of coach, teacher, and mentor.
- The best people want ownership -- psychic and literal -- in a district; the best districts are providing it.
- Districts will increasingly turn to third-party contractors, shifting from hired labor to contract labor.
- Authoritarian management is yielding to a networking people style of management.
- Entrepreneurship within the schools -- intrapreneurship -- is creating new products and new markets and revitalizing districts inside out.
- Quality will be paramount.
- Intuition and creativity are challenging the "it's all in the numbers" business-school philosophy.
- Large districts are emulating the positive and productive qualities of small districts.
- The dawn of the information economy has fostered a massive shift from infrastructure to quality of life.

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